FCC Information and Copyright

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation.

Table of Contents

CHAPTER 1: INTRODUCTION

1.1 BEFORE YOU START

Thank you for choosing our product. Before you start installing the motherboard, please make sure you follow the instructions below:

- Prepare a dry and stable working environment with sufficient lighting.
- Always disconnect the computer from power outlet before operation.
- Before you take the motherboard out from anti-static bag, ground yourself properly by touching any safely grounded appliance, or use grounded wrist strap to remove the static charge.
- Avoid touching the components on motherboard or the rear side of the board unless necessary. Hold the board on the edge, do not try to bend or flex the board.
- Do not leave any unfastened small parts inside the case after installation. Loose parts will cause short circuits which may damage the equipment.
- Keep the computer from dangerous area, such as heat source, humid air and water.

1.2 PACKAGE CHECKLIST

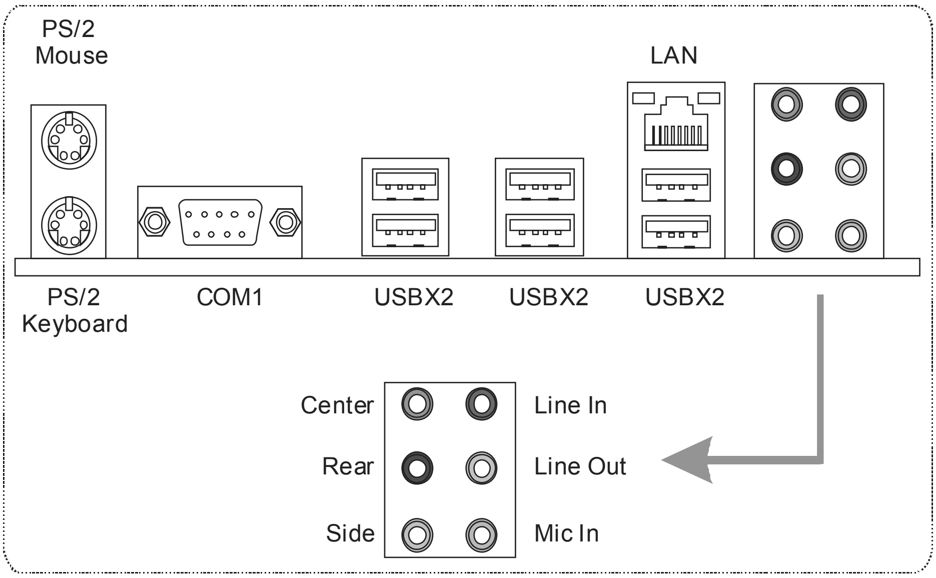
- HDD Cable X 1
- Serial ATA Cable X 2
- Rear I/O Panel for ATX Case X 1
- User's Manual X 1
- Fully Setup Driver CD X 1
- FDD Cable X 1 (optional)
- USB 2.0 Cable X1 (optional)
- S/PDIF out Cable X 1 (optional)
- Serial ATA Power Cable X 1 (optional)

1.3 MOTHERBOARD FEATURES

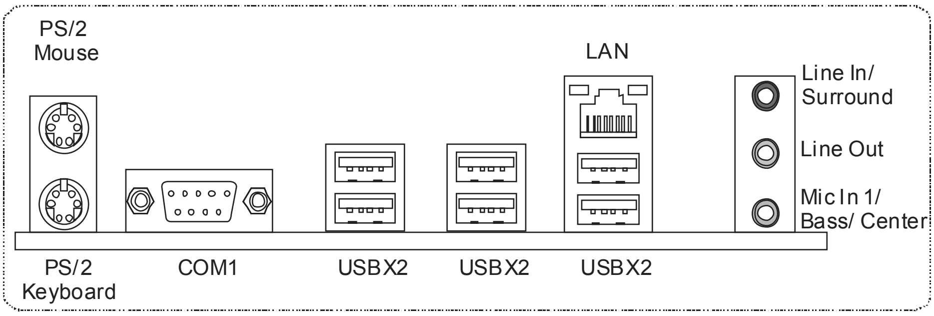
	TF520 A2+	TF560 A2+
CPU	Socket AM2 / AM2+ (By BIOS update) AMD Athlon 64 / Athlon 64 x2 / Sempron processors AMD 64 Architecture enables 32 and 64 bit computing Supports Hyper Transport and Cool'n'Quiet	Socket AM2 / AM2+ (By BIOS update) AMD Athlon 64 / Athlon 64 x2 / Sempron processors AMD 64 Architecture enables 32 and 64 bit computing Supports Hyper Transport and Cool'n'Quiet
FSB	Support up to 1 GHz Bandwidth Support HyperTransport	Support up to 1 GHz Bandwidth Support HyperTransport
Chipset	nVIDIA nForce 520	nVIDIA nForce 560
Super I/O	ITE 8716F Provides the most commonly used legacy Super I/O functionality. Low Pin Count Interface Environment Control initiatives, H/W Monitor Fan Speed Controller ITE's "Smart Guardian" function	ITE 8716F Provides the most commonly used legacy Super I/O functionality. Low Pin Count Interface Environment Control initiatives, H/W Monitor Fan Speed Controller ITE's "Smart Guardian" function
Main Memory	DIMM Slots x 4 Each DIMM supports 256/512MB & 1GB/2GB DDR2 Max Memory Capicity 8GB Dual Channel Mode DDR2 memory module Supports DDR2 533 / 667 / 800 Registered DIMM and ECC DIMM is not supported	DIMM Slots x 4 Each DIMM supports 256/512MB & 1GB/2GB DDR2 Max Memory Capicity 8GB Dual Channel Mode DDR2 memory module Supports DDR2 533 / 667 / 800 Registered DIMM and ECC DIMM is not supported
IDE	Integrated IDE Controller Ultra DMA 33 / 66 / 100 / 133 Bus Master Mode supports PIO Mode 0~4.	Integrated IDE Controller Ultra DMA 33 / 66 / 100 / 133 Bus Master Mode supports PIO Mode 0~4.
SATA II	Integrated Serial ATA Controller Data transfer rates up to 3 Gb/s. SATA Version 2.0 specification compliant.	Integrated Serial ATA Controller Data transfer rates up to 3 Gb/s. SATA Version 2.0 specification compliant.
LAN	Realtek RTL 8110SC / 8100C (optional) 10 / 100 Mb/s / 1Gb/s auto negotiation (Gigabit bandwidth is for RTL 8110SC only) Half / Full duplex capability	Realtek RTL 8110SC / 8100C (optional) 10 / 100 Mb/s / 1Gb/s auto negotiation (Gigabit bandwidth is for RTL 8110SC only) Half / Full duplex capability

	TF520 A2+		*TF560 A2+*	
Sound	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1 channels audio out (ALC888) 5.1 channels audio out (ALC662) HD Audio		ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1 channels audio out (ALC888) 5.1 channels audio out (ALC662) HD Audio	
Slots	PCI slot	x3	PCI slot	x3
	PCI Express x16 slot	x1	PCI Express x16 slot	x1
	PCI Express x 1 slot	x2	PCI Express x 1 slot	x2
On Board Connector	Floppy connector	x1	Floppy connector	x1
	Printer Port connector	x1	Printer Port connector	x1
	IDE Connector	x1	IDE Connector	x1
	SATA Connector	x4	SATA Connector	x4
	Front Panel Connector	x1	Front Panel Connector	x1
	Front Audio Connector	x1	Front Audio Connector	x1
	CD-in Connector	x1	CD-in Connector	x1
	S/PDIF out connector	x1	S/PDIF out connector	x1
	CPU Fan header	x1	CPU Fan header	x1
	System Fan header	x2	System Fan header	x2
	CMOS clear header	x1	CMOS clear header	x1
	USB connector	x2	USB connector	x2
	Power Connector (24pin)	x1	Power Connector (24pin)	x1
	Power Connector (4pin)	x2	Power Connector (4pin)	x2
Back Panel I/O	PS/2 Keyboard	x1	PS/2 Keyboard	x1
	PS/2 Mouse	x1	PS/2 Mouse	x1
	Serial Port	x1	Serial Port	x1
	LAN port	x1	LAN port	x1
	USB Port	x6	USB Port	x6
	Audio Jack (Ver 5.x)	x6	Audio Jack (Ver 5.x)	x6
	Audio Jack (Ver 6.x)	x3	Audio Jack (Ver 6.x)	x3
Board Size	244 mm (W) x 305 mm (L)		244 mm (W) x 305 mm (L)	
Special Features	NVIDIA nTunes RAID 0 / 1 / 0+1 support		NVIDIA nTunes RAID 0 / 1 / 0+1 / 5 support	
OS Support	Windows 2K / XP / VISTA Biostar Reserves the right to add or remove support for any OS With or without notice.		Windows 2K / XP / VISTA Biostar Reserves the right to add or remove support for any OS With or without notice.	

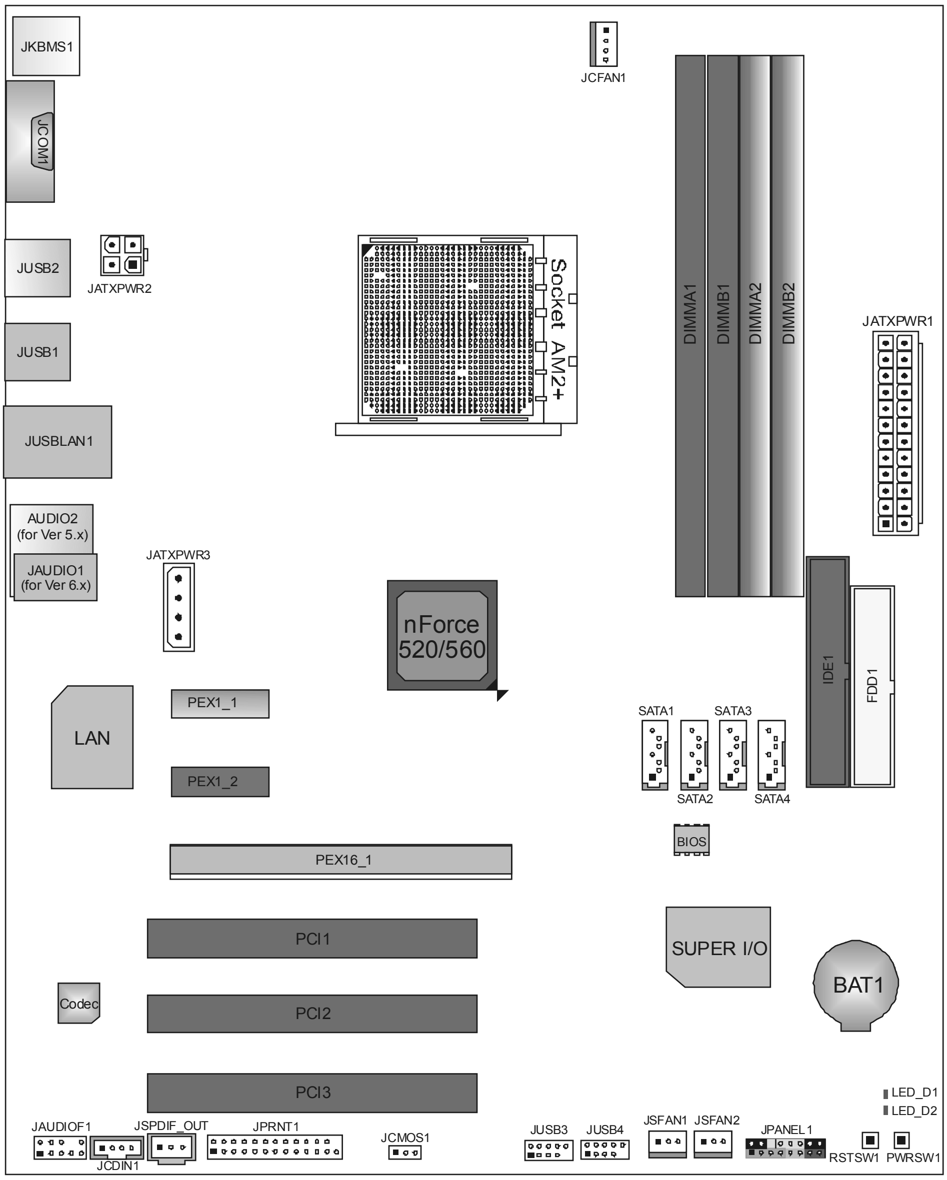
1.4 Rear Panel Connectors (Ver 5.x)



1.5 Rear Panel Connectors (Ver 6.x)



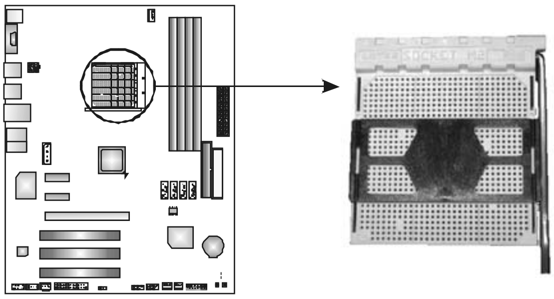
1.6 Motherboard Layout



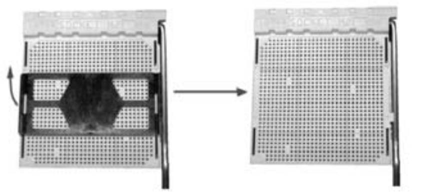
Note: ■ represents the 1st pin.

CHAPTER 2: HARDWARE INSTALLATION

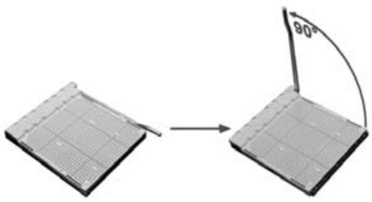
2.1 INSTALLING CENTRAL PROCESSING UNIT (CPU)



Step 1: Remove the socket protection cap.



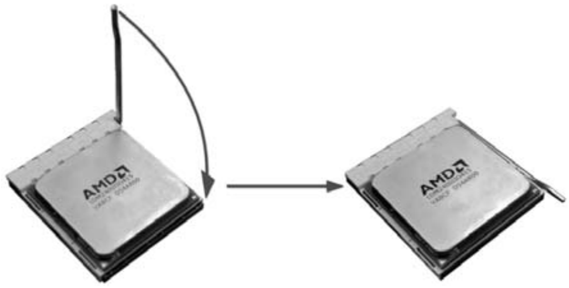
Step 2: Pull the lever toward direction A from the socket and then raise the lever up to a 90-degree angle.



Step 3: Look for the white triangle on socket, and the gold triangle on CPU should point forwards this white triangle. The CPU will fit only in the correct orientation.



Step 4: Hold the CPU down firmly, and then close the lever toward direct B to complete the installation.

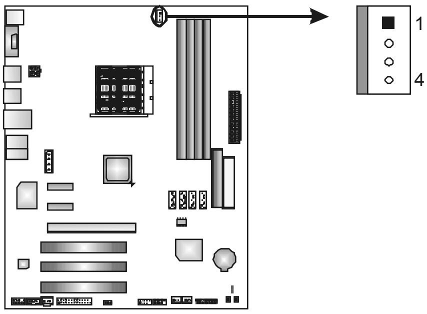


Step 5: Put the CPU Fan on the CPU and buckle it. Connect the CPU FAN power cable to the JCFAN1. This completes the installation.

2.2 FAN HEADERS

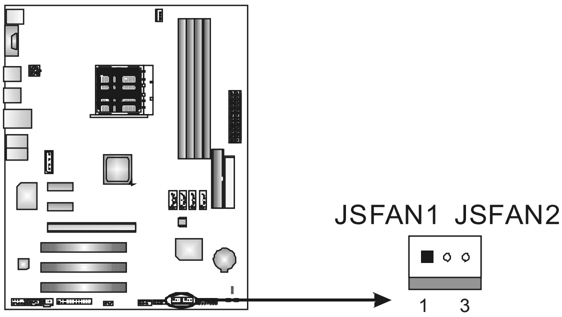
These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

JCFAN1: CPU Fan Header



Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense
4	Smart Fan Control (By Fan)

JSFAN1/JSFAN2: System Fan Headers



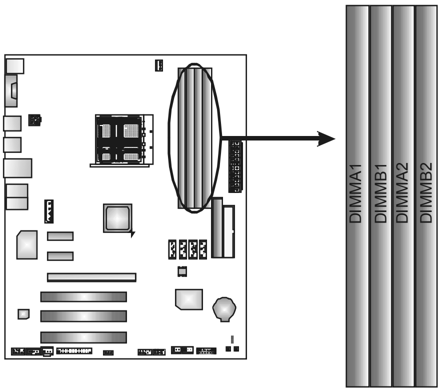
Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense

Note:

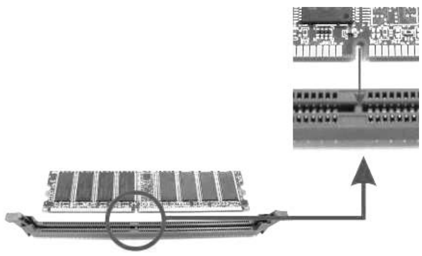
The JCFAN1, JSFAN1, and JSFAN2 support 4-pin and 3-pin head connector. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.

2.3 Installing System Memory

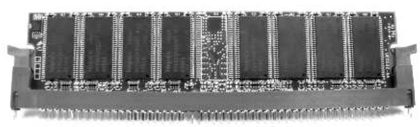
A. Memory Modules



1. Unlock a DIMM slot by pressing the retaining clips outward. Align a DIMM on the slot such that the notch on the DIMM matches the break on the Slot.



2. Insert the DIMM vertically and firmly into the slot until the retaining chip snap back in place and the DIMM is properly seated.



B. Memory Capacity

DIMM Socket Location	DDR2 Module	Total Memory Size
DIMMA1	256MB/512MB/1GB/2GB	Max is 8GB.
DIMMB1	256MB/512MB/1GB/2GB	
DIMMA2	256MB/512MB/1GB/2GB	
DIMMB2	256MB/512MB/1GB/2GB	

C. Dual Channel Memory installation

To trigger the Dual Channel function of the motherboard, the memory module must meet the following requirements:

Install memory module of the same density in pairs, shown in the following table.

Duual Channel Status	DIMMA1	DIMMB1	DIMMA2	DIMMB2
Enabled	O	O	X	X
Enabled	X	X	O	O
Enabled	O	O	O	O

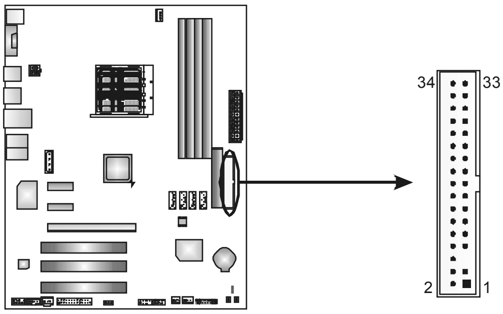
(O means memory installed, X means memory not installed.)

The DRAM bus width of the memory module must be the same (x8 or x16)

2.4 Connectors and Slots

FDD1: Floppy Disk Connector

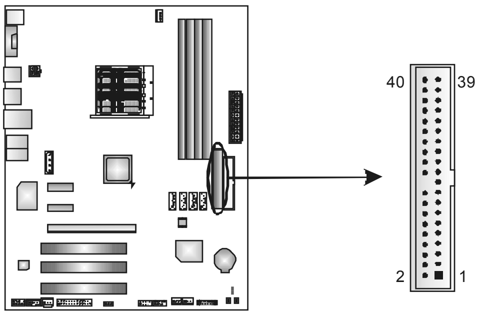
The motherboard provides a standard floppy disk connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.



IDE1: Hard Disk Connectors

The motherboard has a 32-bit Enhanced PCI IDE Controller that provides PIO Mode 0~4, Bus Master, and Ultra DMA 33/66/100/133 functionality.

The IDE connector can connect a master and a slave drive, so you can connect up to two hard disk drives.

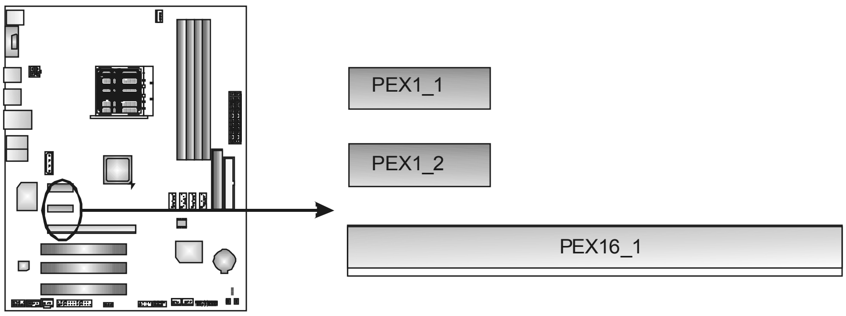


PEX16-1: PCI-Express x16 Slot

- PCI-Express 1.0a compliant.
- Maximum theoretical realized bandwidth of 4GB/s simultaneously per direction, for an aggregate of 8GB/s totally.

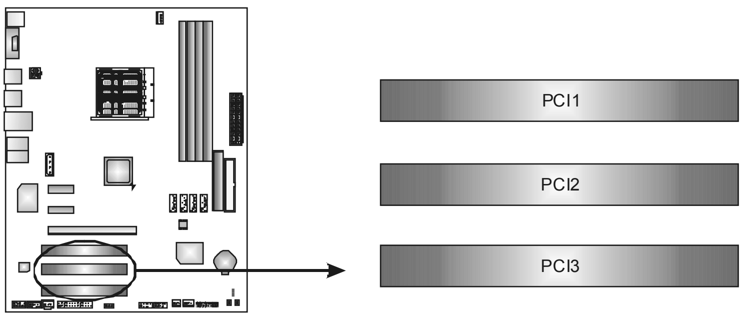
PEX1_1/PEX1_2: PCI-Express x1 Slots

- PCI-Express 1.0a compliant.
- Data transfer bandwidth up to 250MB/s per direction; 500MB/s in total.
- PCI-Express supports a raw bit-rate of 2.5Gb/s on the data pins.
- 2X bandwidth over the traditional PCI architecture.



PCI1~PCI3: Peripheral Component Interconnect Slots

This motherboard is equipped with 3 standard PCI slots. PCI stands for Peripheral Component Interconnect, and it is a bus standard for expansion cards. This PCI slot is designated as 32 bits.



CHAPTER 3: HEADERS & JUMPERS SETUP

3.1 How to Setup Jumpers

The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is "close", if not, that means the jumper is "open".



Pin opened



Pin closed

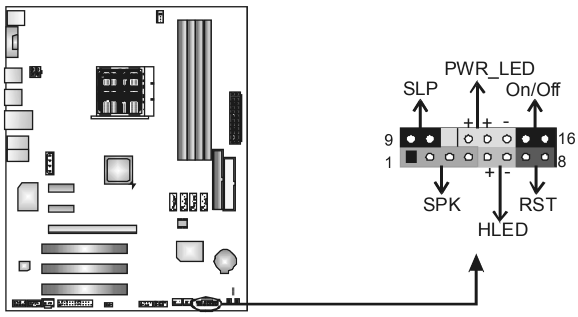


Pin1-2 closed

3.2 Detail Settings

JPANEL1: Front Panel Header

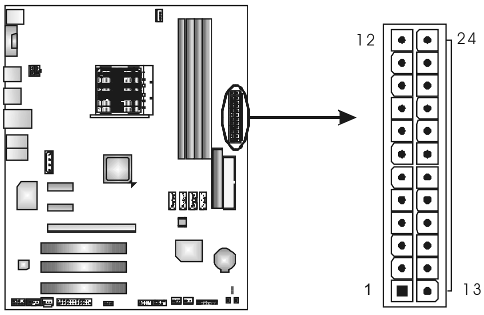
This 16-pin connector includes Power-on, Reset, HDD LED, Power LED, Sleep button and speaker connection. It allows user to connect the PC case's front panel switch functions.



Pin	Assignment	Function	Pin	Assignment	Function
1	+5V	Speaker Connector	9	Sleep control	Sleep button
2	N/A		10	Ground	
3	N/A		11	N/A	N/A
4	Speaker		12	Power LED (+)	Power LED
5	HDD LED (+)	Hard drive LED	13	Power LED (+)	
6	HDD LED (-)		14	Power LED (-)	
7	Ground	Reset button	15	Power button	Power-on button
8	Reset control		16	Ground	

JATXPWR1: ATX Power Source Connector

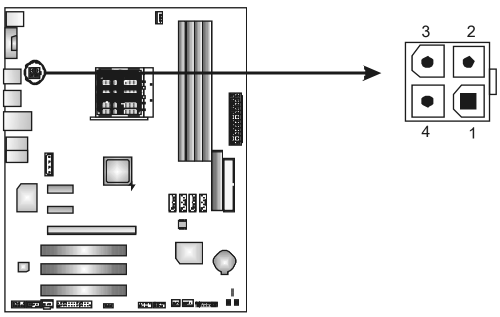
This connector allows user to connect 24-pin power connector on the ATX power supply.



Pin	Assignment
1	+3.3V
2	+3.3V
3	Ground
4	+5V
5	Ground
6	+5V
7	Ground
8	PW_OK
9	Standby Voltage +5V
10	+12V
11	+12V
12	+3.3V
13	+3.3V
14	-12V
15	Ground
16	PS-ON
17	Ground
18	Ground
19	Ground
20	NC
21	+5V
22	+5V
23	+5V
24	Ground

JATXPWR2: ATX Power Source Connector

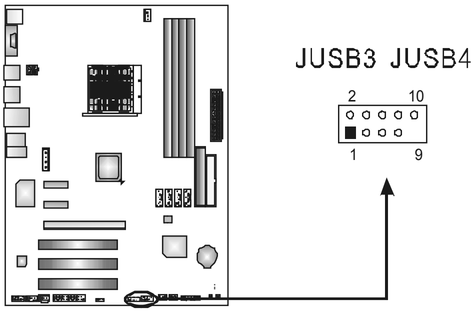
By connecting this connector, it will provide +12V to CPU power circuit.



Pin	Assignment
1	+12V
2	+12V
3	Ground
4	Ground

JUSB3/JUSB4: Headers for USB 2.0 Ports at Front Panel

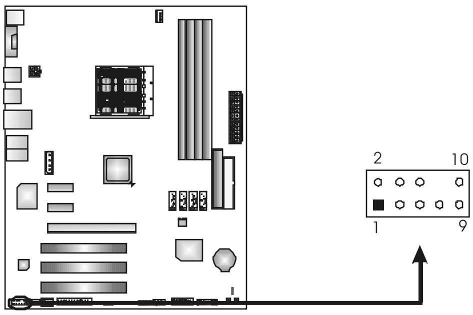
This header allows user to connect additional USB cable on the PC front panel, and also can be connected with internal USB devices, like USB card reader.



Pin	Assignment
1	+5V (fused)
2	+5V (fused)
3	USB-
4	USB-
5	USB+
6	USB+
7	Ground
8	Ground
9	Key

JAUDIOF1: Front Panel Audio Header

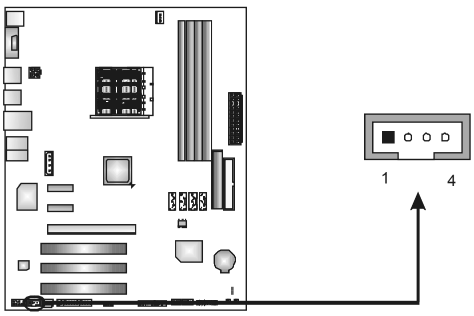
This header allows user to connect the front audio output cable with the PC front panel. It will disable the output on back panel audio connectors.



Pin	Assignment
1	Mic Left in
2	Ground
3	Mic Right in
4	GPIO
5	Right line in
6	Jack Sense
7	Front Sense
8	Key
9	Left line in
10	Jack Sense

JCDIN1: CD-ROM Audio-in Connector

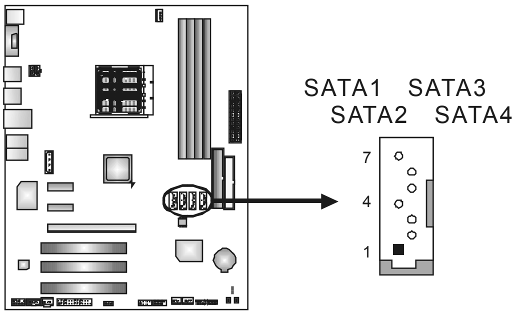
This connector allows user to connect the audio source from the variaty devices, like CD-ROM, DVD-ROM, PCI sound card, PCI TV turner card etc.



Pin	Assignment
1	Left Channel Input
2	Ground
3	Ground
4	Right Channel Input

SATA1~SATA4: Serial ATA Connectors

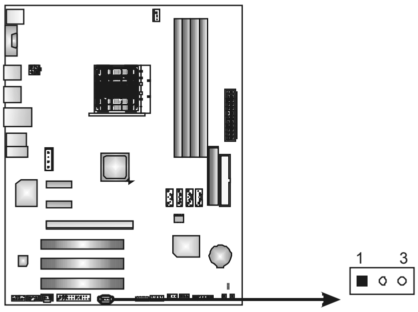
The motherboard has a PCI to SATA Controller with 4 channels SATA interface, it satisfies the SATA 2.0 spec and with transfer rate of 3.0Gb/s.

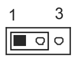


Pin	Assignment
1	Ground
2	TX+
3	TX-
4	Ground
5	RX-
6	RX+
7	Ground

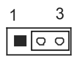
JCMOS1: Clear CMOS Header

By placing the jumper on pin2-3, it allows user to restore the BIOS safe setting and the CMOS data, please carefully follow the procedures to avoid damaging the motherboard.





Pin 1-2 Close:
Normal Operation (default).



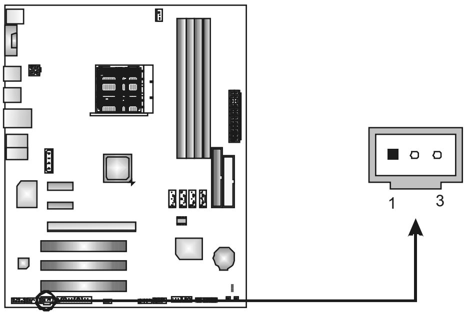
Pin 2-3 Close:
Clear CMOS data.

※ Clear CMOS Procedures:

1. Remove AC power line.
2. Set the jumper to “Pin 2-3 close”.
3. Wait for five seconds.
4. Set the jumper to “Pin 1-2 close”.
5. Power on the AC.
6. Reset your desired password or clear the CMOS data.

JSPDIF_OUT1: Digital Audio out Connector

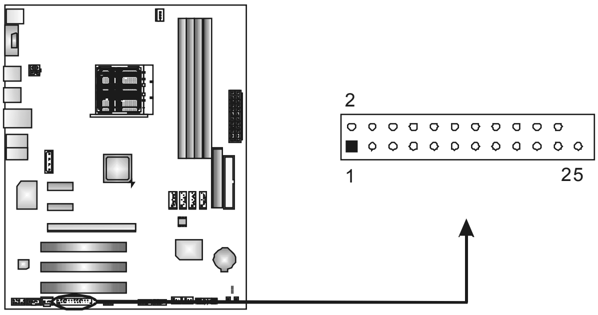
This connector allows user to connect the PCI bracket SPDIF output header.



Pin	Assignment
1	+5V
2	SPDIF_OUT
3	Ground

JPRNT1: Printer Port Connector

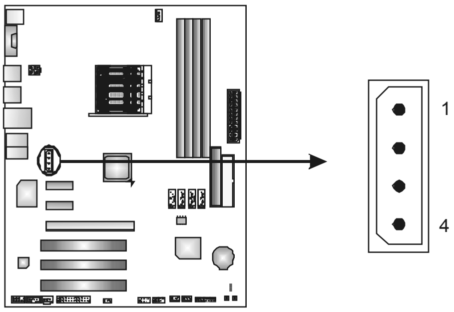
This header allows you to connector printer on the PC.



Pin	Assignment	Pin	Assignment
1	-Strobe	14	Ground
2	-ALF	15	Data 6
3	Data 0	16	Ground
4	-Error	17	Data 7
5	Data 1	18	Ground
6	-Init	19	-ACK
7	Data 2	20	Ground
8	-Scltin	21	Busy
9	Data 3	22	Ground
10	Ground	23	PE
11	Data 4	24	Ground
12	Ground	25	SCLT
13	Data 5	26	Key

JATXPWR3: Auxiliary Power for Graphics

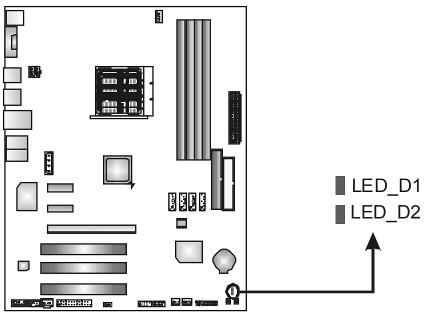
This connector is an auxiliary power connection for graphics cards. Exclusive power for the graphics card provides better graphics performance.



Pin	Assignment
1	+12V
2	Ground
3	Ground
4	VCC

On-Board LED Indicators

There are 2 LED indicators on the motherboard to show system status.



LED_D1 and LED_D2:

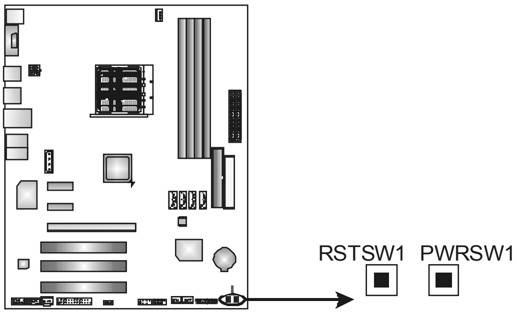
These 2 LED indicate system power on diagnostics.

Please refer to the table below for different messages:

LED_D1	LED_D2	Message
ON	ON	Normal
ON	OFF	Memory Error
OFF	ON	VGA Error
OFF	OFF	Abnormal: CPU / Chipset error.

On-Board Buttons

There are 2 on-board buttons.



PWRSW1:

This is an on-board Power Switch button.

RSTSW1:

This is an on-board Reset button.

CHAPTER 4: NVIDIA RAID FUNCTIONS

4.1 OPERATION SYSTEM

- Supports Windows XP Home/Professional Edition, and Windows 2000 Professional.

4.2 RAID ARRAYS

NVRAID supports the following types of RAID arrays:

RAID 0: RAID 0 defines a disk striping scheme that improves disk read and write times for many applications.

RAID 1: RAID 1 defines techniques for mirroring data.

RAID 0+1: RAID 0+1 combines the techniques used in RAID 0 and RAID 1.

RAID 5: RAID 5 provides fault tolerance and better utilization of disk capacity.

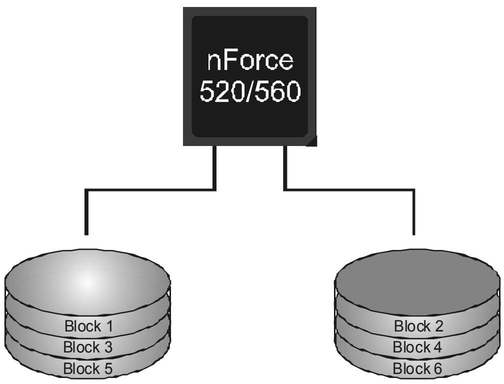
4.3 HOW RAID WORKS

RAID 0:

The controller "stripes" data across multiple drives in a RAID 0 array system. It breaks up a large file into smaller blocks and performs disk reads and writes across multiple drives in parallel. The size of each block is determined by the stripe size parameter, which you set during the creation of the RAID set based on the system environment. This technique reduces overall disk access time and offers high bandwidth.

Features and Benefits

- ***Drives:*** Minimum 1, and maximum is up to 6 or 8. Depending on the platform.
- ***Uses:*** Intended for non-critical data requiring high data throughput, or any environment that does not require fault tolerance.
- ***Benefits:*** provides increased data throughput, especially for large files. No capacity loss penalty for parity.
- ***Drawbacks:*** Does not deliver any fault tolerance. If any drive in the array fails, all data is lost.
- ***Fault Tolerance:*** No.



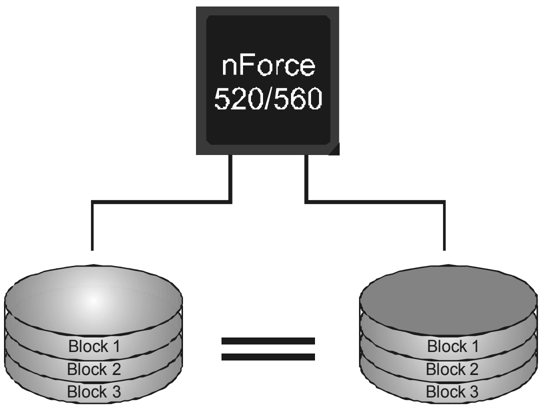
RAID 1:

Every read and write is actually carried out in parallel across 2 disk drives in a RAID 1 array system. The mirrored (backup) copy of the data can reside on the same disk or on a second redundant drive in the array. RAID 1 provides a hot-standby copy of data if the active volume or drive is corrupted or becomes unavailable because of a hardware failure.

RAID techniques can be applied for high-availability solutions, or as a form of automatic backup that eliminates tedious manual backups to more expensive and less reliable media.

Features and Benefits

- ***Drives:*** Minimum 2, and maximum is 2.
- ***Uses:*** RAID 1 is ideal for small databases or any other application that requires fault tolerance and minimal capacity.
- ***Benefits:*** Provides 100% data redundancy. Should one drive fail, the controller switches to the other drive.
- ***Drawbacks:*** Requires 2 drives for the storage space of one drive. Performance is impaired during drive rebuilds.
- ***Fault Tolerance:*** Yes.

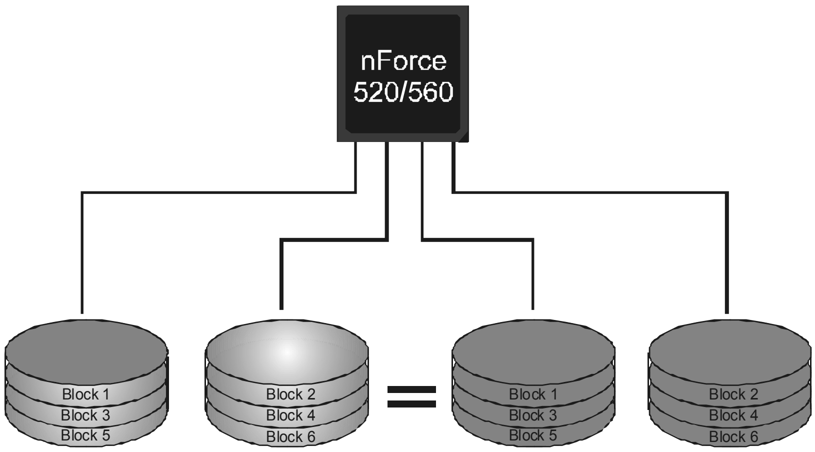


RAID 0+1:

RAID 0 drives can be mirrored using RAID 1 techniques. Resulting in a RAID 0+1 solution for improved performance plus resiliency.

Features and Benefits

- ***Drives:*** Minimum 4, and maximum is 6 or 8, depending on the platform.
- ***Benefits:*** Optimizes for both fault tolerance and performance, allowing for automatic redundancy. May be simultaneously used with other RAID levels in an array, and allows for spare disks.
- ***Drawbacks:*** Requires twice the available disk space for data redundancy, the same as RAID level 1.
- ***Fault Tolerance:*** Yes.

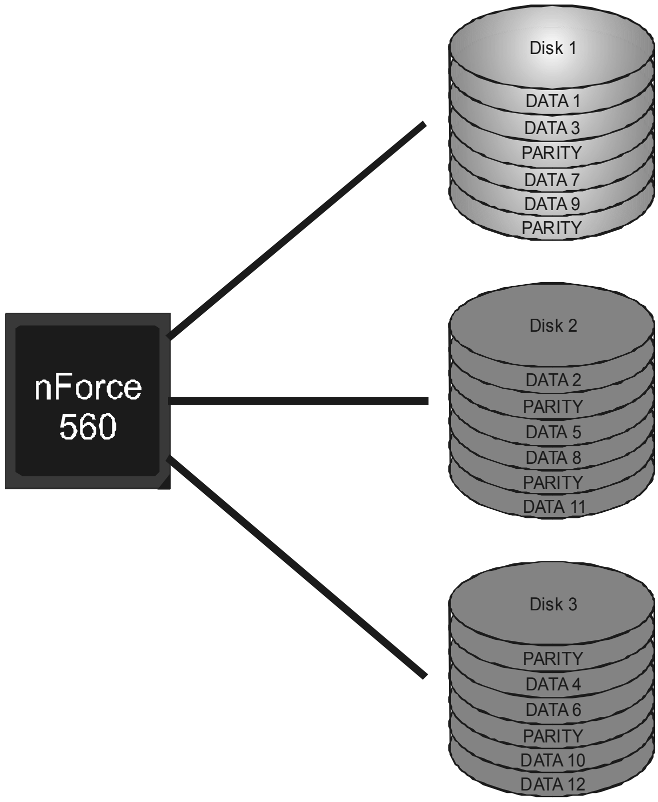


RAID 5:

RAID 5 stripes both data and parity information across three or more drives. It writes data and parity blocks across all the drives in the array. Fault tolerance is maintained by ensuring that the parity information for any given block of data is placed on a different drive from those used to store the data itself.

Features and Benefits

- ***Drives:*** Minimum 3.
- ***Uses:*** RAID 5 is recommended for transaction processing and general purpose service.
- ***Benefits:*** An ideal combination of good performance, good fault tolerance, and high capacity and storage efficiency.
- ***Drawbacks:*** Individual block data transfer rate same as a single disk. Write performance can be CPU intensive.
- ***Fault Tolerance:*** Yes.



※ **For more detailed setup information, please refer to the Driver CD, or go to** http://www.nvidia.com/page/pg_20011106217193.html to download NVIDIA nForce Tutorial Flash.

CHAPTER 5: OVERCLOCK QUICK GUIDE

5.1 T-POWER INTRODUCTION

Biostar T-Power is a whole new utility that is designed for overclock users. Based on many precise tests, *Biostar Engineering Team* (BET) has developed this ultimate overclock engine to raise system performance. No matter whether under BIOS or Windows interface, *T-Power* is able to present the best system state according to users' overclock setting.

T-Power BIOS Features:

- Overclocking Navigator Engine (O.N.E.)
- CMOS Reloading Program (C.R.P.)
- Memory Integration Test (M.I.T., under Overclock Navigator Engine)
- Integrated Flash Program (I.F.P.)
- Self Recovery System (S.R.S)
- Smart Fan Function (under PC Health Status)

T-Power Windows Feature:

- Hardware Monitor
- Overclock Engine
- System Information

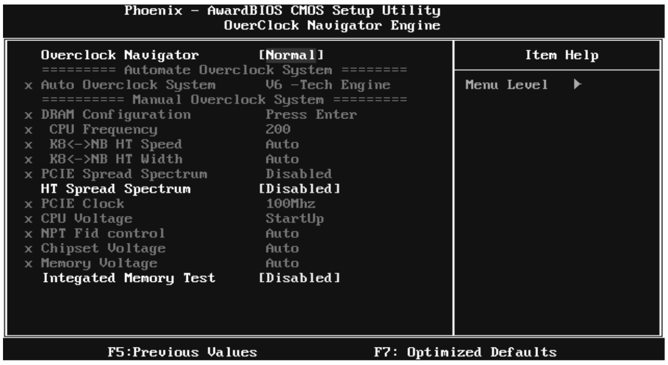
!! WARNING !!

For better system performance, the BIOS firmware is being continuously updated. The BIOS information described below in this manual is for your reference only and the actual BIOS information and settings on board may be different from this manual. For further information of setting up the BIOS, please refer to the BIOS Manual in the Setup CD.

5.2 T-Power BIOS Feature

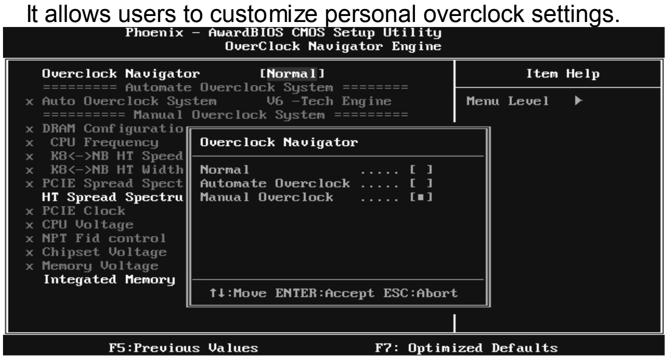
A. Overclocking Navigator Engine (O.N.E.):

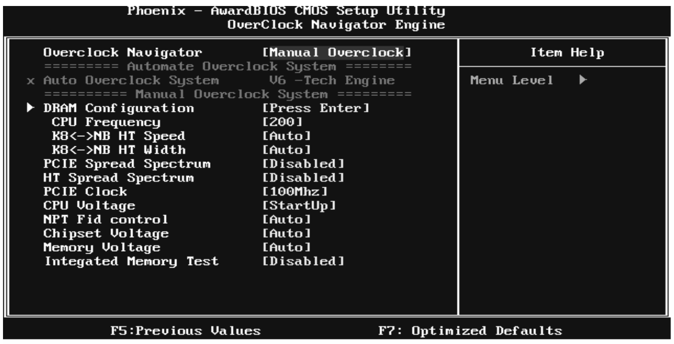
ONE provides two powerful overclocking engines: MOS and AOS for both Elite and Casual overclockers.



Manual Overclock System (M.O.S.)

MOS is designed for experienced overclock users.
It allows users to customize personal overclock settings.





DRAM Configuration:

Enter this function for more advanced DRAM settings.

CPU Frequency:

CPU Frequency is directly in proportion to system performance. To maintain the system stability, CPU voltage needs to be increased also when raising CPU frequency.

K8<->NB HT Speed:

This option controls the HyperTransport speed of CPU to northbridge chipset.

K8<->NB HT Width:

This option controls the HyperTransport width of CPU to northbridge chipset.

PCIE Spread Spectrum:

This BIOS feature allows you to reduce the EMI of the PCI Express bus by modulating the signals it generates so that the spikes are reduced to flatter curves. Please disable this option when proceeding overclocking.

HT Spread Spectrum:

Please disable this option when proceeding overclocking.

PCIE Clock:

It helps to increase VGA card performance.

CPU Voltage:

This function will increase CPU stability when overclocking. However, the CPU temperature will increase when CPU voltage is increased.

NPT Fid Control:

This function allows you to adjust the frequency ratio of CPU.

Chipset Voltage:

This function will increase chipset stability when overclocking.

Memory Voltage:

This function will increase memory stability when overclocking.

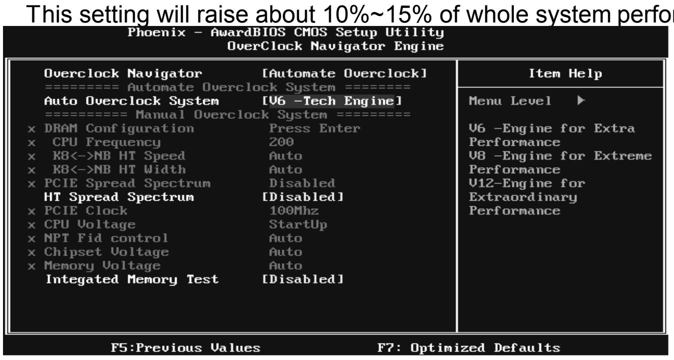
Automatic Overclock System (A.O.S.)

For beginners in overclock field, BET had developed an easy, fast, and powerful feature to increase the system performance, named A.O.S. Based on many tests and experiments, A.O.S. provides 3 ideal overclock configurations that are able to raise the system performance in a single step.



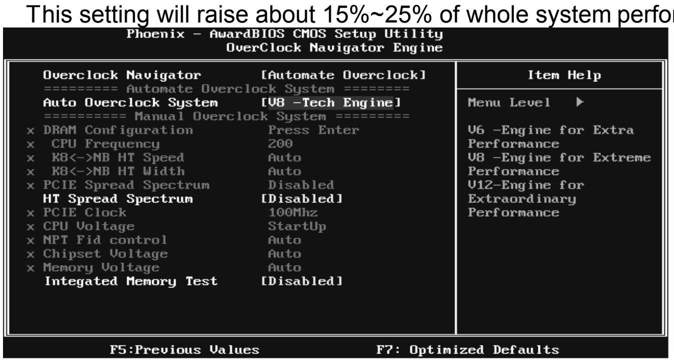
V6 Tech Engine:

This setting will raise about 10%~15% of whole system performance.



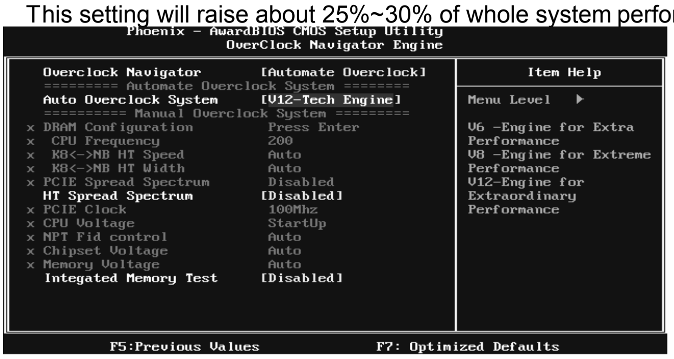
V8 Tech Engine:

This setting will raise about 15%~25% of whole system performance.



V12 Tech Engine:

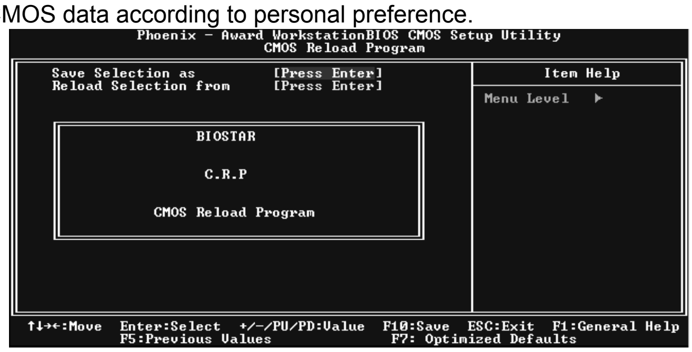
This setting will raise about 25%~30% of whole system performance.



> ***Notices:***
>
> 1. Not all types of AMD CPU perform above overclock setting ideally; the difference will be based on the selected CPU model.

B. CMOS Reloading Program (C.R.P.):

It allows users to save different CMOS settings into BIOS-ROM.
Users are able to reload any saved CMOS setting for customizing system configurations.
Moreover, users are able to save an ideal overclock setting during overclock operation.
There are 50 sets of record addresses in total, and users are able to name the CMOS data according to personal preference.



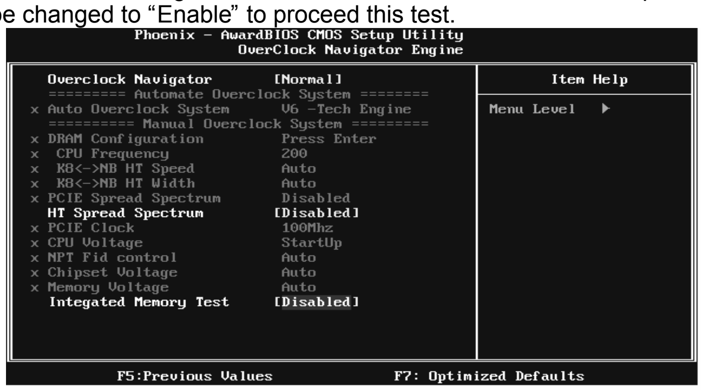
C. Memory Integration Test (M.I.T.):

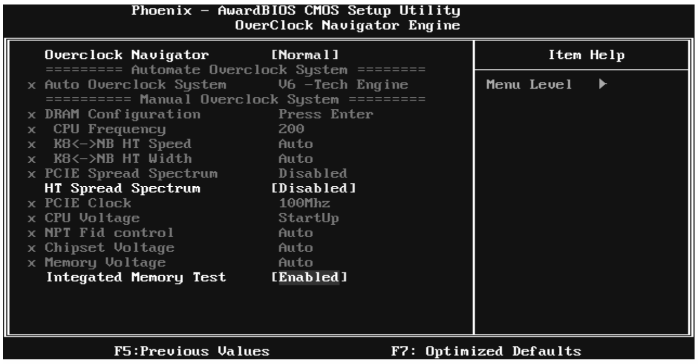
This function is under "Overclocking Navigator Engine" item.

MIT allows users to test memory compatibilities, and no extra devices or software are needed.

Step 1:

The default setting under this item is "Disabled"; the condition parameter should be changed to "Enable" to proceed this test.





Step 2:

Save and Exit from CMOS setup and reboot the system to activate this test.

Run this test for 5 minutes (minimum) to ensure the memory stability.

Step 3:

When the process is done, change the setting back from "Enable" to "Disable" to complete the test.

D. Self Recovery System (S.R.S.):

This function can't be seen under T-Power BIOS setup; and is always on whenever the system starts up.

However, it can prevent system hang-up due to inappropriate overclock actions.

When the system hangs up, S.R.S. will automatically log in the default BIOS setting, and all overclock settings will be re-configured.

E. Integrated Flash Program (I.F.P.):

IFP is a safe and quick way to upgrade BIOS.

Step 1:

Go to Biostar website (http://www.biostar.com.tw) to download the latest BIOS file. Then, save the file into a floppy disk.

Step 2:

Insert the floppy disk and reboot the system to get into CMOS screen.

Step 3:

Select the item "Integrated Flash Program" to get the following frame and choose the BIOS file downloaded in step 1.



Step 4:

Press "Enter" key to start BIOS file loading, and BIOS updating will process automatically.

Step 5:

When the BIOS update is completed, press YES to the message "Flash done, Reset system", and the system will reboot automatically to finish the process.

> *Advise:*
> You can update the system BIOS by simply pressing "Enter" key for three times.

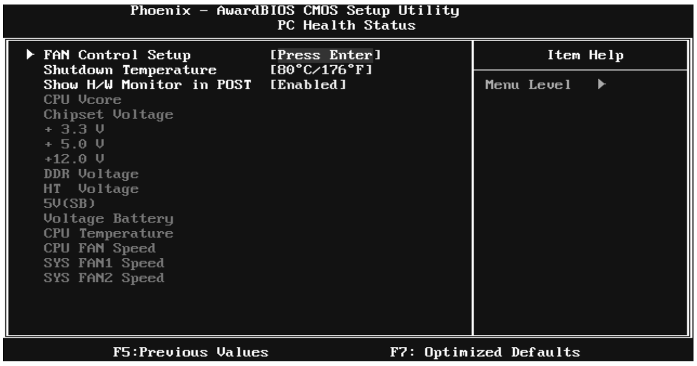
F. Smart Fan Function:

Smart Fan Function is under “PC Health Status”.

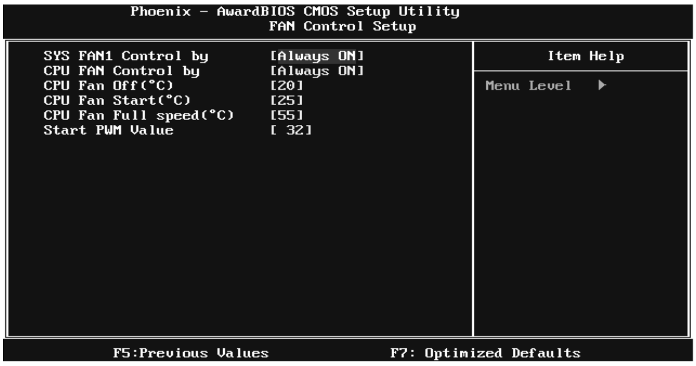
This is a brilliant feature to control CPU Temperature vs. Fan speed.

When enabling Smart Fan function, Fan speed is controlled automatically by CPU temperature.

This function will protect CPU from overheat problem and maintain the system temperature at a safe level.



↓



SYS FAN1 Control by:

This option controls the northbridge fan. Select “Smart” to activate smart fan function for reducing the noise and power consuming of the fan.

CPU FAN Control by:

This option controls the CPU fan. Select “Smart” to activate smart fan function for reducing the noise and power consuming of the fan.

CPU Fan Off <℃>:

If the CPU temperature is lower than the set value, the CPU fan will turn off. The range is from 0℃~127℃, with an interval of 1℃.

CPU Fan Start <℃>

The CPU fan starts to work when CPU temperature arrives to this set value. The range is from 0℃~127℃, with an interval of 1℃.

CPU Fan Full speed <℃>

When CPU temperature arrives to the set value, the CPU fan will work under Full Speed. The range is from 0℃~127℃, with an interval of 1℃.

Start PWM Value

When CPU temperature arrives to the set value, the CPU fan will work under Smart Fan Function mode. The range is from 0~127, with an interval of 1.

5.3 T-POWER WINDOWS FEATURE

1. Desktop Icon

After the T-Utility has been installed, a T-Utility icon will appear on the desktop, just like the icon shown below.



Now you can launch the T-Utility simply by double-clicking the desktop icon.

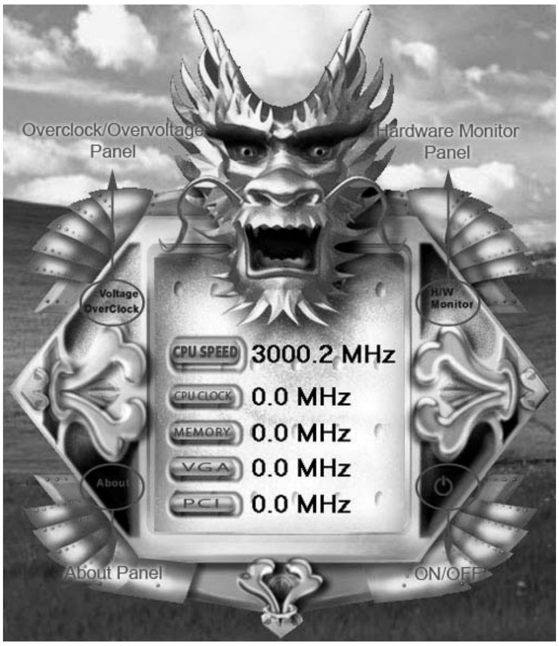
2. Main Panel

If you double-click the desktop icon, T-Utility will be launched. Please refer to the following figure; the utility's first window you will see is Main Panel.

Main Panel contains features as follows:

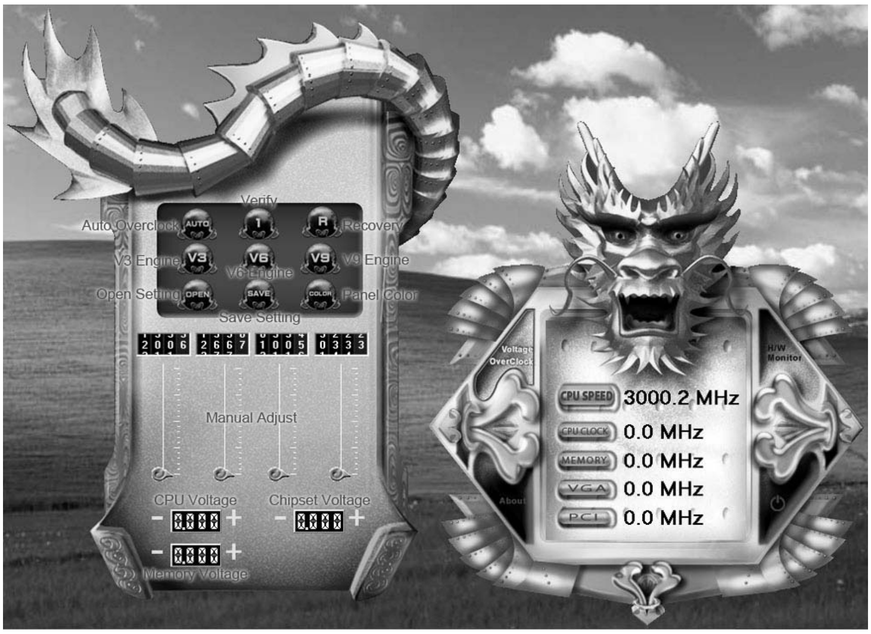
a. Display the CPU Speed, CPU external clock, Memory clock, VGA clock, and PCI clock information.

b. Contains About, Overclock/Overvoltage, and Hardware Monitor Buttons for invoking respective panels. The On/Off button is for closing the program.



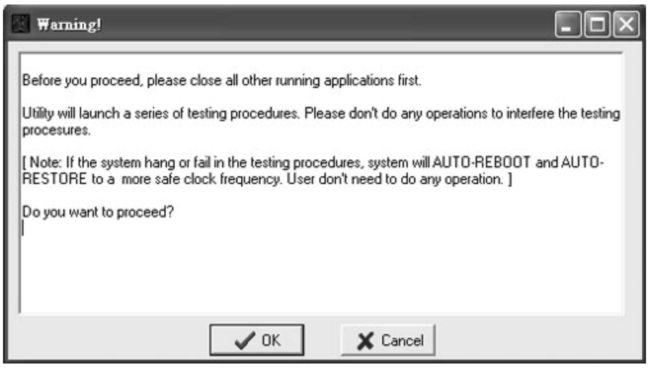
3. Overclock/Overvoltage Panel

Click the Overclock/Overvoltage button in the Main Panel, the button will be highlighted and the Overclock/Overvoltage Panel will show up as the following figure. As you can see, the Overclock Panel is on the upper side, and the Overvoltage Panel is on the lower side.



Overclock Panel contains these features:

a. "Auto-Overclock":
User can click this button and T-Utility will set the best and stable performance and frequency automatically. A warning dialog as below will show up to notify you that the system may become unstable, click on "OK" to continue.



Then T-Utility will execute a series of testing until system fail. Then system will do fail-safe reboot by using Watchdog function. After reboot, launch the T-Utility again and the utility will load the previously verified best and stable frequency.

b. "Verify":
If you use the "Manual Adjust" bar to adjust the CPU frequency, then you can click this button and T-Utility will proceed a testing for current frequency. If the testing is ok, then the current frequency will be saved into system registry. If the testing fails, system will do a fail-safe rebooting. After reboot, the T-Utility will restore to the hardware default setting.

Warning:
Manually overclock is potentially dangerous, especially when the overclocking percentage is over 110 %. We strongly recommend you verify every speed you overclock by click the Verify button. Or, you can just click Auto overclock button and let T-Utility automatically gets the best result for you.

c. "V3 Engine"/"V6 Engine"/"V9 Engine":
Provide user the ability to do real-time overclock adjustment.

d. "Recovery":
Click this button and the T-Utility will restore all values to the hardware default setting.

e. “Save / Open Setting”:
   Click Save button to save current setting to a file, and click Open button to load a previously saved setting.

f. “Panel Color”:
   Click this button to change the color of the panel.

Overvoltage Panel contains these features:

a. “CPU Voltage”:
   This function allows user to adjust CPU voltage. Click on “+” to increase or “-“ to decrease the CPU voltage.

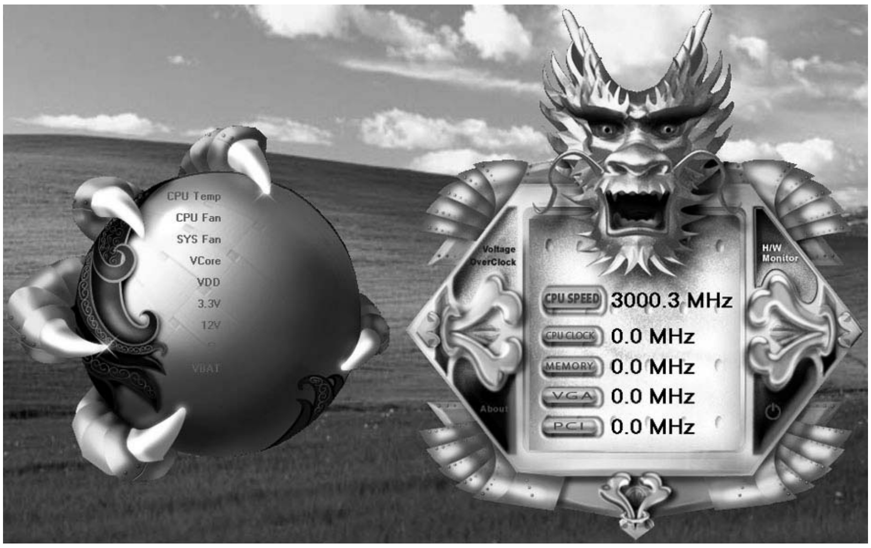
b. “Memory Voltage”:
   This function allows user to adjust Memory voltage. Click on “+” to increase or “-“ to decrease the Memory voltage.

c. “Chipset Voltage”:
   This function allows user to adjust Chipset voltage. Click on “+” to increase or “-“ to decrease the Chipset voltage.

4. Hardware Monitor Panel

Click the Hardware Monitor button in Main Panel, the button will be highlighted and the Hardware Monitor panel will show up as the following figure.

In this panel, you can get the real-time status information of your system. The information will be refreshed every 1 second.



5. About Panel

Click the “about” button in Main Panel, the button will be highlighted and the About Panel will show up as the following figure.

In this panel, you can get model name and detail information in hints of all the chipset that are related to overclocking. You can also get the the version number of T-Utility.



Note:

Because the overclock, overvoltage, and hardware monitor features are controlled by several separate chipset, T-Utility divides these features to separate panels. If one chipset is not on board, the correlative button in Main panel will be disabled, but it will not interfere with other panels’ functions. This property can make T-Utility more robust.

CHAPTER 6:   USEFUL HELP

6.1 DRIVER INSTALLATION NOTE

After you installed your operating system, please insert the Fully Setup Driver CD into your optical drive and install the driver for better system performance.

You will see the following window after you insert the CD



The setup guide will auto detect your motherboard and operating system.

> **Note:**
> If this window didn't show up after you insert the Driver CD, please use file browser to locate and execute the file ***SETUP.EXE*** under your optical drive.

A. Driver Installation

To install the driver, please click on the Driver icon. The setup guide will list the compatible driver for your motherboard and operating system. Click on each device driver to launch the installation program.

B. Software Installation

To install the software, please click on the Software icon. The setup guide will list the software available for your system, click on each software title to launch the installation program.

C. Manual

Aside from the paperback manual, we also provide manual in the Driver CD. Click on the Manual icon to browse for available manual.

> **Note:**
> You will need Acrobat Reader to open the manual file. Please download the latest version of Acrobat Reader software from
> ***http://www.adobe.com/products/acrobat/readstep2.html***

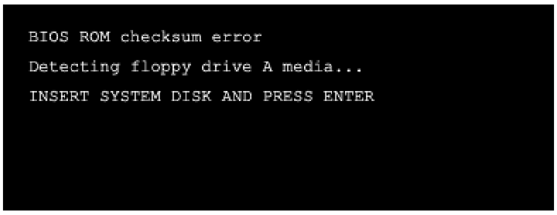
6.2 AWARD BIOS BEEP CODE

Beep Sound	Meaning
One long beep followed by two short beeps	Video card not found or video card memory bad
High-low siren sound	CPU overheated System will shut down automatically
One Short beep when system boot-up	No error found during POST
Long beeps every other second	No DRAM detected or install

6.3 EXTRA INFORMATION

A. BIOS Update

After you fail to update BIOS or BIOS is invaded by virus, the Boot-Block function will help to restore BIOS. If the following message is shown after boot-up the system, it means the BIOS contents are corrupted.



In this Case, please follow the procedure below to restore the BIOS:

1. Make a bootable floppy disk.
2. Download the Flash Utility "AWDFLASH.exe" from the Biostar website: www.biostar.com.tw
3. Confirm motherboard model and download the respectively BIOS from Biostar website.
4. Copy "AWDFLASH.exe" and respectively BIOS into floppy disk.
5. Insert the bootable disk into floppy drive and press Enter.
6. System will boot-up to DOS prompt.
7. Type *"Awdflash xxxx.bf/sn/py/r"* in DOS prompt.
   (*xxxx* means BIOS name.)
8. System will update BIOS automatically and restart.
9. The BIOS has been recovered and will work properly.

B. CPU Overheated

If the system shutdown automatically after power on system for seconds, that means the CPU protection function has been activated.

When the CPU is over heated, the motherboard will shutdown automatically to avoid a damage of the CPU, and the system may not power on again.

In this case, please double check:

1. The CPU cooler surface is placed evenly with the CPU surface.
2. CPU fan is rotated normally.
3. CPU fan speed is fulfilling with the CPU speed.

After confirmed, please follow steps below to relief the CPU protection function.

1. Remove the power cord from power supply for seconds.
2. Wait for seconds.
3. Plug in the power cord and boot up the system.

Or you can:

1. Clear the CMOS data.
   (See “Close CMOS Header: JCMOS1” section)
2. Wait for seconds.
3. Power on the system again.

6.4 TROUBLESHOOTING

Probable	Solution
1. No power to the system at all Power light don't illuminate, fan inside power supply does not turn on. 2. Indicator light on keyboard does not turn on.	1. Make sure power cable is securely plugged in. 2. Replace cable. 3. Contact technical support.
System inoperative. Keyboard lights are on, power indicator lights are lit, and hard drive is spinning.	Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.
System does not boot from hard disk drive, can be booted from optical drive.	1. Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the standard CMOS setup. 2. Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.
System only boots from optical drive. Hard disk can be read and applications can be used but booting from hard disk is impossible.	1. Back up data and applications files. 2. Reformat the hard drive. Re-install applications and data using backup disks.
Screen message says "Invalid Configuration" or "CMOS Failure."	Review system's equipment. Make sure correct information is in setup.
Cannot boot system after installing second hard drive.	1. Set master/slave jumpers correctly. 2. Run SETUP program and select correct drive types. Call the drive manufacturers for compatibility with other drives.

APPENDENCIES: SPEC IN OTHER LANGUAGE

GERMAN

	TF520 A2+	TF560 A2+
CPU	Sockel AM2 / AM2+(Durch BIOS Aktualisierung) AMD Athlon 64 / Athlon 64 x2 / Sempron Prozessoren Die AMD 64-Architektur unterstützt eine 32-Bit- und 64-Bit-Datenverarbeitung Unterstützt Hyper Transport und Cool'n'Quiet	Sockel AM2 / AM2+(Durch BIOS Aktualisierung) AMD Athlon 64 / Athlon 64 x2 / Sempron Prozessoren Die AMD 64-Architektur unterstützt eine 32-Bit- und 64-Bit-Datenverarbeitung Unterstützt Hyper Transport und Cool'n'Quiet
FSB	Unterstützt HyperTransport mit einer Bandbreite von bis zu 1 GHz	Unterstützt HyperTransport mit einer Bandbreite von bis zu 1 GHz
Chipsatz	nVIDIA nForce 520	nVIDIA nForce 560
Super E/A	ITE 8716F Bietet die häufig verwendeten alten Super E/A-Funktionen. Low Pin Count-Schnittstelle Umgebungskontrolle, Hardware-Überwachung Lüfterdrehzahl-Controller "Smart Guardian"-Funktion von ITE	ITE 8716F Bietet die häufig verwendeten alten Super E/A-Funktionen. Low Pin Count-Schnittstelle Umgebungskontrolle, Hardware-Überwachung Lüfterdrehzahl-Controller "Smart Guardian"-Funktion von ITE
Arbeitsspeicher	DDR2 DIMM-Steckplätze x 4 Jeder DIMM unterstützt 256/512MB & 1GB/2GB DDR2. Max. 8GB Arbeitsspeicher Dual-Kanal DDR2 Speichermodul Unterstützt DDR2 533 / 667 / 800 registrierte DIMMs. ECC DIMMs werden nicht unterstützt.	DDR2 DIMM-Steckplätze x 4 Jeder DIMM unterstützt 256/512MB & 1GB/2GB DDR2. Max. 8GB Arbeitsspeicher Dual-Kanal DDR2 Speichermodul Unterstützt DDR2 533 / 667 / 800 registrierte DIMMs. ECC DIMMs werden nicht unterstützt.
IDE	Integrierter IDE-Controller Ultra DMA 33 / 66 / 100 / 133 Bus Master-Modus Unterstützt PIO-Modus 0~4,	Integrierter IDE-Controller Ultra DMA 33 / 66 / 100 / 133 Bus Master-Modus Unterstützt PIO-Modus 0~4,
SATA II	Integrierter Serial ATA-Controller Datentransferrate bis zu 3Gb/s Konform mit der SATA-Spezifikation Version 2.0.	Integrierter Serial ATA-Controller Datentransferrate bis zu 3Gb/s Konform mit der SATA-Spezifikation Version 2.0.
LAN	Realtek RTL 8110SC / RTL 8100C(optional) 10 / 100 / 1000 Mb/s Auto-Negotiation (Gigabit-Bandbreite nur beim RTL 8110SC) Halb-/ Vollduplex-Funktion	Realtek RTL 8110SC / RTL 8100C(optional) 10 / 100 / 1000 Mb/s Auto-Negotiation (Gigabit-Bandbreite nur beim RTL 8110SC) Halb-/ Vollduplex-Funktion

	TF520 A2+		TF560 A2+	
Audio-Codec	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1-Kanal-Audioausgabe (ALC888) 5.1-Kanal-Audioausgabe (ALC662) Unterstützt High-Definition Audio		ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1-Kanal-Audioausgabe (ALC888) 5.1-Kanal-Audioausgabe (ALC662) Unterstützt High-Definition Audio	
Steckplätze	PCI-Steckplatz	x3	PCI-Steckplatz	x3
	PCI Express x16 Steckplatz	x1	PCI Express x16 Steckplatz	x1
	PCI Express x 1-Steckplatz	x2	PCI Express x 1-Steckplatz	x2
Onboard-Anschluss	Diskettenlaufwerkanschluss	x1	Diskettenlaufwerkanschluss	x1
	Druckeranschluss Anschluss	x1	Druckeranschluss Anschluss	x1
	IDE-Anschluss	x1	IDE-Anschluss	x1
	SATA-Anschluss	x4	SATA-Anschluss	x4
	Fronttafelanschluss	x1	Fronttafelanschluss	x1
	Front-Audioanschluss	x1	Front-Audioanschluss	x1
	CD-IN-Anschluss	x1	CD-IN-Anschluss	x1
	S/PDIF-Ausgangsanschluss	x1	S/PDIF-Ausgangsanschluss	x1
	CPU-Lüfter-Sockel	x1	CPU-Lüfter-Sockel	x1
	System-Lüfter-Sockel	x2	System-Lüfter-Sockel	x2
	"CMOS löschen"-Sockel	x1	"CMOS löschen"-Sockel	x1
	USB-Anschluss	x2	USB-Anschluss	x2
	Stromanschluss (24-polig)	x1	Stromanschluss (24-polig)	x1
	Stromanschluss (4-polig)	x2	Stromanschluss (4-polig)	x2
Rückseiten-E/A	PS/2-Tastatur	x1	PS/2-Tastatur	x1
	PS/2-Maus	x1	PS/2-Maus	x1
	Serieller Anschluss	x1	Serieller Anschluss	x1
	LAN-Anschluss	x1	LAN-Anschluss	x1
	USB-Anschluss	x6	USB-Anschluss	x6
	Audioanschluss (Ver 5.x)	x6	Audioanschluss (Ver 5.x)	x6
	Audioanschluss (Ver 6.x)	x3	Audioanschluss (Ver 6.x)	x3
Platinengröße.	244 mm (B) X 305 mm (L)		244 mm (B) X 305 mm (L)	
Sonderfunktionen	NVIDIA nTunes Unterstützt RAID 0 / 1 / 0+1		NVIDIA nTunes Unterstützt RAID 0 / 1 / 0+1 / 5	
OS-Unterstützung	Windows 2K / XP / VISTA Biostar behält sich das Recht vor, ohne Ankündigung die Unterstützung für ein Betriebssystem hinzuzufügen oder zu entfernen.		Windows 2K / XP / VISTA Biostar behält sich das Recht vor, ohne Ankündigung die Unterstützung für ein Betriebssystem hinzuzufügen oder zu entfernen.	

FRANCE

	TF520 A2+	TF560 A2+
UC	Socket AM2 / AM2+ (Par la mise à jour de BIOS) Processeurs AMD Athlon 64 / Athlon 64 x2 / Sempron L'architecture AMD 64 permet le calcul 32 et 64 bits Prend en charge Hyper Transport et Cool'n'Quiet	Socket AM2 / AM2+ (Par la mise à jour de BIOS) Processeurs AMD Athlon 64 / Athlon 64 x2 / Sempron L'architecture AMD 64 permet le calcul 32 et 64 bits Prend en charge Hyper Transport et Cool'n'Quiet
Bus frontal	Prend en charge Hyper Transport jusqu'à une bande passante de 1 GHz	Prend en charge Hyper Transport jusqu'à une bande passante de 1 GHz
Chipset	nVIDIA nForce 520	nVIDIA nForce 560
Super E/S	ITE 8716F Fournit la fonctionnalité de Super E/S patrimoniales la plus utilisée. Interface à faible compte de broches Initiatives de contrôle environnementales, Moniteur de matériel Contrôleur de vitesse de ventilateur Fonction "Gardien intelligent" de l'ITE	ITE 8716F Fournit la fonctionnalité de Super E/S patrimoniales la plus utilisée. Interface à faible compte de broches Initiatives de contrôle environnementales, Moniteur de matériel Contrôleur de vitesse de ventilateur Fonction "Gardien intelligent" de l'ITE
Mémoire principale	Fentes DDR2 DIMM x 4 Chaque DIMM prend en charge des DDR2 de 256/512 Mo et 1Go/2Go Capacité mémoire maximale de 8 Go Module de mémoire DDR2 à mode à double voie Prend en charge la DDR2 533 / 667 / 800 Les DIMM à registres et DIMM avec code correcteurs d'erreurs ne sont pas prises en charge	Fentes DDR2 DIMM x 4 Chaque DIMM prend en charge des DDR2 de 256/512 Mo et 1Go/2Go Capacité mémoire maximale de 8 Go Module de mémoire DDR2 à mode à double voie Prend en charge la DDR2 533 / 667 / 800 Les DIMM à registres et DIMM avec code correcteurs d'erreurs ne sont pas prises en charge
IDE	Contrôleur IDE intégré Mode principale de Bus Ultra DMA 33 / 66 / 100 / 133 Prend en charge le mode PIO 0~4,	Contrôleur IDE intégré Mode principale de Bus Ultra DMA 33 / 66 / 100 / 133 Prend en charge le mode PIO 0~4,
SATA SATA II	Contrôleur Serial ATA intégré : Taux de transfert jusqu'à 3 Go/s. Conforme à la spécification SATA Version 2.0	Contrôleur Serial ATA intégré : Taux de transfert jusqu'à 3 Go/s. Conforme à la spécification SATA Version 2.0
LAN	Realtek RTL 8110SC / RTL 8100C(optional) 10 / 100 / 1000 Mb/s négociation automatique (La bande passante Gigabit est pour le RTL 8110SC uniquement) Half / Full duplex capability	Realtek RTL 8110SC / RTL 8100C(optional) 10 / 100 / 1000 Mb/s négociation automatique (La bande passante Gigabit est pour le RTL 8110SC uniquement) Half / Full duplex capability

	TF520 A2+		*TF560 A2+*	
Codec audio	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Sortie audio à 7.1 voies (ALC888) Sortie audio à 5.1 voies (ALC662) Prise en charge de l'audio haute définition Sortie		ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Sortie audio à 7.1 voies (ALC888) Sortie audio à 5.1 voies (ALC662) Prise en charge de l'audio haute définition Sortie	
Fentes	Fente PCI	x3	Fente PCI	x3
	Slot PCI Express x16	x1	Slot PCI Express x16	x1
	Slot PCI Express x 1	x2	Slot PCI Express x 1	x2
Connecteur embarqué	Connecteur de disquette	x1	Connecteur de disquette	x1
	Connecteur de Port d'imprimante	x1	Connecteur de Port d'imprimante	x1
	Connecteur IDE	x1	Connecteur IDE	x1
	Connecteur SATA	x4	Connecteur SATA	x4
	Connecteur du panneau avant	x1	Connecteur du panneau avant	x1
	Connecteur Audio du panneau avant	x1	Connecteur Audio du panneau avant	x1
	Connecteur d'entrée CD	x1	Connecteur d'entrée CD	x1
	Connecteur de sortie S/PDIF	x1	Connecteur de sortie S/PDIF	x1
	Embase de ventilateur UC	x1	Embase de ventilateur UC	x1
	Embase de ventilateur système	x2	Embase de ventilateur système	x2
	Embase d'effacement CMOS	x1	Embase d'effacement CMOS	x1
	Connecteur USB	x2	Connecteur USB	x2
	Connecteur d'alimentation (24 broches)	x1	Connecteur d'alimentation (24 broches)	x1
	Connecteur d'alimentation (4 broches)	x2	Connecteur d'alimentation (4 broches)	x2
E/S du panneau arrière	Clavier PS/2	x1	Clavier PS/2	x1
	Souris PS/2	x1	Souris PS/2	x1
	Port série	x1	Port série	x1
	Port LAN	x1	Port LAN	x1
	Port USB	x6	Port USB	x6
	Fiche audio (Ver 5.x)	x6	Fiche audio (Ver 5.x)	x6
	Fiche audio (Ver 6.x)	x3	Fiche audio (Ver 6.x)	x3
Dimensions de la carte	244 mm (l) X 305 mm (H)		244 mm (l) X 305 mm (H)	
Fonctionnalités spéciales	NVIDIA nTunes Prise en charge RAID 0 / 1 / 0+1		NVIDIA nTunes Prise en charge RAID 0 / 1 / 0+1 / 5	
Support SE	Windows 2K / XP / VISTA Biostar se réserve le droit d'ajouter ou de supprimer le support de SE avec ou sans préavis.		Windows 2K / XP / VISTA Biostar se réserve le droit d'ajouter ou de supprimer le support de SE avec ou sans préavis.	

ITALIAN

	TF520 A2+	TF560 A2+
CPU	Socket AM2 / AM2+(Dall'aggiornamento di BIOS) Processori AMD Athlon 64 / Athlon 64 x2 / Sempron L'architettura AMD 64 abilita la computazione 32 e 64 bit Supporto di Hyper Transport e Cool'n'Quiet	Socket AM2 / AM2+(Dall'aggiornamento di BIOS) Processori AMD Athlon 64 / Athlon 64 x2 / Sempron L'architettura AMD 64 abilita la computazione 32 e 64 bit Supporto di Hyper Transport e Cool'n'Quiet
FSB	Supporto di HyperTransport fino a 1 GHz di larghezza di banda	Supporto di HyperTransport fino a 1 GHz di larghezza di banda
Chipset	nVIDIA nForce 520	nVIDIA nForce 560
Super I/O	ITE 8716F Fornisce le funzionalità legacy Super I/O usate più comunemente. Interfaccia LPC (Low Pin Count) Funzioni di controllo dell'ambiente: Monitoraggio hardware Controller velocità ventolina Funzione "Smart Guardian" di ITE	ITE 8716F Fornisce le funzionalità legacy Super I/O usate più comunemente. Interfaccia LPC (Low Pin Count) Funzioni di controllo dell'ambiente: Monitoraggio hardware Controller velocità ventolina Funzione "Smart Guardian" di ITE
Memoria principale	Alloggi DIMM DDR2 x 4 Ciascun DIMM supporta DDR2 256/512MB e 1GB/2GB Capacità massima della memoria 8GB Modulo di memoria DDR2 a canale doppio Supporto di DDR2 533 / 667 / 800 DIMM registrati e DIMM ECC non sono supportati	Alloggi DIMM DDR2 x 4 Ciascun DIMM supporta DDR2 256/512MB e 1GB/2GB Capacità massima della memoria 8GB Modulo di memoria DDR2 a canale doppio Supporto di DDR2 533 / 667 / 800 DIMM registrati e DIMM ECC non sono supportati
IDE	Controller IDE integrato Modalità Bus Master Ultra DMA 33 / 66 / 100 / 133 Supporto modalità PIO Mode 0-4	Controller IDE integrato Modalità Bus Master Ultra DMA 33 / 66 / 100 / 133 Supporto modalità PIO Mode 0-4
SATA II	Controller Serial ATA integrato Velocità di trasferimento dei dati fino a 3 Gb/s. Compatibile specifiche SATA Versione 2.0.	Controller Serial ATA integrato Velocità di trasferimento dei dati fino a 3 Gb/s. Compatibile specifiche SATA Versione 2.0.
LAN	Realtek RTL 8110SC / RTL 8100C(optional) Negoziazione automatica 10 / 100 / 1000 Mb/s (la larghezza di banda Gigabit è solo per RTL 8110SC) Capacità Half / Full Duplex	Realtek RTL 8110SC / RTL 8100C(optional) Negoziazione automatica 10 / 100 / 1000 Mb/s (la larghezza di banda Gigabit è solo per RTL 8110SC) Capacità Half / Full Duplex

	TF520 A2+		*TF560 A2+*	
Codec audio	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Uscita audio 7.1 canali (ALC888) Uscita audio 5.1 canali (ALC662) Supporto audio High-Definition (HD)		ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Uscita audio 7.1 canali (ALC888) Uscita audio 5.1 canali (ALC662) Supporto audio High-Definition (HD)	
Alloggi	Alloggio PCI	x3	Alloggio PCI	x3
	Alloggio PCI Express x16	x1	Alloggio PCI Express x16	x1
	Alloggio PCI Express x1	x2	Alloggio PCI Express x1	x2
Connettori su scheda	Connettore floppy	x1	Connettore floppy	x1
	Connettore Porta stampante	x1	Connettore Porta stampante	x1
	Connettore IDE	x1	Connettore IDE	x1
	Connettore SATA	x4	Connettore SATA	x4
	Connettore pannello frontale	x1	Connettore pannello frontale	x1
	Connettore audio frontale	x1	Connettore audio frontale	x1
	Connettore CD-in	x1	Connettore CD-in	x1
	Connettore output SPDIF	x1	Connettore output SPDIF	x1
	Collettore ventolina CPU	x1	Collettore ventolina CPU	x1
	Collettore ventolina sistema	x2	Collettore ventolina sistema	x2
	Collettore cancellazione CMOS	x1	Collettore cancellazione CMOS	x1
	Connettore USB	x2	Connettore USB	x2
	Connettore alimentazione (24 pin)	x1	Connettore alimentazione (24 pin)	x1
	Connettore alimentazione (4 pin)	x2	Connettore alimentazione (4 pin)	x2
I/O pannello posteriore	Tastiera PS/2	x1	Tastiera PS/2	x1
	Mouse PS/2	x1	Mouse PS/2	x1
	Porta seriale	x1	Porta seriale	x1
	Porta LAN	x1	Porta LAN	x1
	Porta USB	x6	Porta USB	x6
	Connettore audio (Ver 5.x)	x6	Connettore audio (Ver 5.x)	x6
	Connettore audio (Ver 6.x)	x3	Connettore audio (Ver 6.x)	x3
Dimension i scheda	244 mm (larghezza) x 305 mm (altezza)		244 mm (larghezza) x 305 mm (altezza)	
Caratterist iche speciali	nTunes NVIDIA Supporto RAID 0 / 1 / 0+1		nTunes NVIDIA Supporto RAID 0 / 1 / 0+1 / 5	
Sistemi operativi supportati	Windows 2K / XP / VISTA Biostar si riserva il diritto di aggiungere o rimuovere il supporto di qualsiasi sistema operativo senza preavviso.		Windows 2K / XP / VISTA Biostar si riserva il diritto di aggiungere o rimuovere il supporto di qualsiasi sistema operativo senza preavviso.	

SPANISH

	TF520 A2+	***TF560 A2+***
CPU	Conector AM2 / AM2+ (Por BIOS actualiza) Procesadores AMD Athlon 64 / Athlon 64 x2 / Sempron La arquitectura AMD 64 permite el procesado de 32 y 64 bits Soporta las tecnologías Hyper Transport y Cool'n'Quiet	Conector AM2 / AM2+ (Por BIOS actualiza) Procesadores AMD Athlon 64 / Athlon 64 x2 / Sempron La arquitectura AMD 64 permite el procesado de 32 y 64 bits Soporta las tecnologías Hyper Transport y Cool'n'Quiet
FSB	Admite HyperTransport con un ancho de banda de hasta 1 GHz	Admite HyperTransport con un ancho de banda de hasta 1 GHz
Conjunto de chips	nVIDIA nForce 520	nVIDIA nForce 560
Súper E/S	ITE 8716F Le ofrece las funcionalidades heredadas de uso más común Súper E/S. Interfaz de cuenta Low Pin Iniciativas de control de entorno, Monitor hardware Controlador de velocidad de ventilador Función "Guardia inteligente" de ITE	ITE 8716F Le ofrece las funcionalidades heredadas de uso más común Súper E/S. Interfaz de cuenta Low Pin Iniciativas de control de entorno, Monitor hardware Controlador de velocidad de ventilador Función "Guardia inteligente" de ITE
Memoria principal	Ranuras DIMM DDR2 x 4 Cada DIMM admite DDR de 256/512MB y 1GB/2GB Capacidad máxima de memoria de 8GB Módulo de memoria DDR2 de canal Doble Admite DDR2 de 533 / 667 / 800 No admite DIMM registrados o DIMM compatibles con ECC	Ranuras DIMM DDR2 x 4 Cada DIMM admite DDR de 256/512MB y 1GB/2GB Capacidad máxima de memoria de 8GB Módulo de memoria DDR2 de canal Doble Admite DDR2 de 533 / 667 / 800 No admite DIMM registrados o DIMM compatibles con ECC
IDE	Controlador IDE integrado Modo bus maestro Ultra DMA 33 / 66 / 100 / 133 Soporte los Modos PIO 0~4,	Controlador IDE integrado Modo bus maestro Ultra DMA 33 / 66 / 100 / 133 Soporte los Modos PIO 0~4,
SATA II	Controlador ATA Serie Integrado Tasas de transferencia de hasta 3 Gb/s. Compatible con la versión SATA 2.0.	Controlador ATA Serie Integrado Tasas de transferencia de hasta 3 Gb/s. Compatible con la versión SATA 2.0.
Red Local	Realtek RTL 8110SC / RTL 8100C (opcional) Negociación de 10 / 100 / 1000 Mb/s (el ancho de banda Gigabit es únicamente para 8110SC) Funciones Half / Full dúplex	Realtek RTL 8110SC / RTL 8100C (opcional) Negociación de 10 / 100 / 1000 Mb/s (el ancho de banda Gigabit es únicamente para 8110SC) Funciones Half / Full dúplex

	TF520 A2+		*TF560 A2+*	
Códecs de sonido	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Salida de sonido de 7.1 canales (ALC888) Salida de sonido de 5.1 canales (ALC662) Soporte de sonido de Alta Definición		ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Salida de sonido de 7.1 canales (ALC888) Salida de sonido de 5.1 canales (ALC662) Soporte de sonido de Alta Definición	
Ranuras	Ranura PCI	X3	Ranura PCI	X3
	Ranura PCI Express x16	X1	Ranura PCI Express x16	X1
	Ranura PCI express x 1	X2	Ranura PCI express x 1	X2
Conectores en placa	Conector disco flexible	X1	Conector disco flexible	X1
	Conector Puerto de impresora	X1	Conector Puerto de impresora	X1
	Conector IDE	X1	Conector IDE	X1
	Conector SATA	X4	Conector SATA	X4
	Conector de panel frontal	X1	Conector de panel frontal	X1
	Conector de sonido frontal	X1	Conector de sonido frontal	X1
	Conector de entrada de CD	X1	Conector de entrada de CD	X1
	Conector de salida S/PDIF	X1	Conector de salida S/PDIF	X1
	Cabecera de ventilador de CPU	X1	Cabecera de ventilador de CPU	X1
	Cabecera de ventilador de sistema	X2	Cabecera de ventilador de sistema	X2
	Cabecera de borrado de CMOS	X1	Cabecera de borrado de CMOS	X1
	Conector USB	X2	Conector USB	X2
	Conector de alimentación (24 patillas)	X1	Conector de alimentación (24 patillas)	X1
	Conector de alimentación (4 patillas)	X2	Conector de alimentación (4 patillas)	X2
Panel trasero de E/S	Teclado PS/2	X1	Teclado PS/2	X1
	Ratón PS/2	X1	Ratón PS/2	X1
	Puerto serie	X1	Puerto serie	X1
	Puerto de red local	X1	Puerto de red local	X1
	Puerto USB	X6	Puerto USB	X6
	Conector de sonido (Ver 5.x)	X6	Conector de sonido (Ver 5.x)	X6
	Conector de sonido (Ver 6.x)	X3	Conector de sonido (Ver 6.x)	X3
Tamaño de la placa	244 mm. (A) X 305 Mm. (H)		244 mm. (A) X 305 Mm. (H)	
Funciones especiales	NVIDIA nTunes Admite RAID 0 / 1 / 0+1		NVIDIA nTunes Admite RAID 0 / 1 / 0+1 / 5	
Soporte de sistema operativo	Windows 2K / XP / VISTA Biostar se reserva el derecho de añadir o retirar el soporte de cualquier SO con o sin aviso previo.		Windows 2K / XP / VISTA Biostar se reserva el derecho de añadir o retirar el soporte de cualquier SO con o sin aviso previo.	

PORTUGUESE

	TF520 A2+	TF560 A2+
CPU	Socket AM2 / AM2+ (Por BIOS atualize) Processadores AMD Athlon 64 / Athlon 64 x2 / Sempron A arquitectura AMD 64 permite uma computação de 32 e 64 bits Suporta as tecnologias Hyper Transport e Cool'n'Quiet	Socket AM2 / AM2+ (Por BIOS atualize) Processadores AMD Athlon 64 / Athlon 64 x2 / Sempron A arquitectura AMD 64 permite uma computação de 32 e 64 bits Suporta as tecnologias Hyper Transport e Cool'n'Quiet
FSB	Suporta a tecnologia HyperTransport com uma largura de banda até 1 GHz	Suporta a tecnologia HyperTransport com uma largura de banda até 1 GHz
Chipset	nVIDIA nForce 520	nVIDIA nForce 560
Especificação Super I/O	ITE 8716F Proporciona as funcionalidades mais utilizadas em termos da especificação Super I/O. Interface LPC (Low Pin Count). Iniciativas para controlo do ambiente Monitorização do hardware Controlador da velocidade da ventoinha Função "Smart Guardian" da ITE	ITE 8716F Proporciona as funcionalidades mais utilizadas em termos da especificação Super I/O. Interface LPC (Low Pin Count). Iniciativas para controlo do ambiente Monitorização do hardware Controlador da velocidade da ventoinha Função "Smart Guardian" da ITE
Memória principal	Ranhuras DIMM DDR2 x 4 Cada módulo DIMM suporta uma memória DDR2 de 256/512 MB & 1 GB/2 GB Capacidade máxima de memória: 8 GB Módulo de memória DDR2 de canal duplo Suporta módulos DDR2 533 / 667 / 800 Os módulos DIMM registados e os DIMM ECC não são suportados	Ranhuras DIMM DDR2 x 4 Cada módulo DIMM suporta uma memória DDR2 de 256/512 MB & 1 GB/2 GB Capacidade máxima de memória: 8 GB Módulo de memória DDR2 de canal duplo Suporta módulos DDR2 533 / 667 / 800 Os módulos DIMM registados e os DIMM ECC não são suportados
IDE	Controlador IDE integrado Modo Bus master Ultra DMA 33 / 66 / 100 / 133 Suporta o modo PIO 0~4,	Controlador IDE integrado Modo Bus master Ultra DMA 33 / 66 / 100 / 133 Suporta o modo PIO 0~4,
SATA II	Controlador Serial ATA integrado Velocidades de transmissão de dados até 3 Gb/s. Compatibilidade com a especificação SATA versão 2.0.	Controlador Serial ATA integrado Velocidades de transmissão de dados até 3 Gb/s. Compatibilidade com a especificação SATA versão 2.0.
LAN	Realtek RTL 8110SC / RTL 8100C(opcional) Auto negociação de 10 / 100 / 1000 Mb/s (a largura de banda Gigabit refere-se apenas à especificação RTL 8110SC) Capacidade semi/full-duplex	Realtek RTL 8110SC / RTL 8100C(opcional) Auto negociação de 10 / 100 / 1000 Mb/s (a largura de banda Gigabit refere-se apenas à especificação RTL 8110SC) Capacidade semi/full-duplex

	TF520 A2+		TF560 A2+	
Codec de som	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Saída de áudio de 7.1 canais (ALC888) Saída de áudio de 5.1 canais (ALC662) Suporta a especificação High-Definition Audio		ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Saída de áudio de 7.1 canais (ALC888) Saída de áudio de 5.1 canais (ALC662) Suporta a especificação High-Definition Audio	
Ranhuras	Ranhura PCI	x3	Ranhura PCI	x3
	Ranhura PCI Express x16	x1	Ranhura PCI Express x16	x1
	Ranhura PCI Express x 1	x2	Ranhura PCI Express x 1	x2
Conectores na placa	Conector da unidade de disquetes	x1	Conector da unidade de disquetes	x1
	Conector da para impressora	x1	Conector da para impressora	x1
	Conector IDE	x1	Conector IDE	x1
	Conector SATA	x4	Conector SATA	x4
	Conector do painel frontal	x1	Conector do painel frontal	x1
	Conector de áudio frontal	x1	Conector de áudio frontal	x1
	Conector para entrada de CDs	x1	Conector para entrada de CDs	x1
	Conector de saída S/PDIF	x1	Conector de saída S/PDIF	x1
	Conector da ventoinha da CPU	x1	Conector da ventoinha da CPU	x1
	Conector da ventoinha do sistema	x2	Conector da ventoinha do sistema	x2
	Conector para limpeza do CMOS	x1	Conector para limpeza do CMOS	x1
	Conector USB	x2	Conector USB	x2
	Conector de alimentação (24 pinos)	x1	Conector de alimentação (24 pinos)	x1
	Conector de alimentação (4 pinos)	x2	Conector de alimentação (4 pinos)	x2
Entradas/Saídas no painel traseiro	Teclado PS/2	x1	Teclado PS/2	x1
	Rato PS/2	x1	Rato PS/2	x1
	Porta série	x1	Porta série	x1
	Porta LAN	x1	Porta LAN	x1
	Porta USB	x6	Porta USB	x6
	Tomada de áudio (Ver 5.x)	x6	Tomada de áudio (Ver 5.x)	x6
	Tomada de áudio (Ver 6.x)	x3	Tomada de áudio (Ver 6.x)	x3
Tamanho da placa	244mm (L) X 305 mm (A)		244mm (L) X 305 mm (A)	
Características especiais	nTunes da NVIDIA Suporta as funções RAID 0 / 1 / 0+1		nTunes da NVIDIA Suporta as funções RAID 0 / 1 / 0+1 / 5	
Sistemas operativos suportados	Windows 2K / XP / VISTA A Biostar reserva-se o direito de adicionar ou remover suporte para qualquer sistema operativo com ou sem aviso prévio.		Windows 2K / XP / VISTA A Biostar reserva-se o direito de adicionar ou remover suporte para qualquer sistema operativo com ou sem aviso prévio.	

POLISH

	TF520 A2+	TF560 A2+
Procesor	Socket AM2 / AM2+ (Przez BIOS modernizować) AMD Athlon 64 / Athlon 64 x2 / Sempron Procesory Architektura AMD 64 umożliwia przetwarzanie 32 i 64 bitowe Obsługa Hyper Transport oraz Cool'n'Quiet	Socket AM2 / AM2+ (Przez BIOS modernizować) AMD Athlon 64 / Athlon 64 x2 / Sempron Procesory Architektura AMD 64 umożliwia przetwarzanie 32 i 64 bitowe Obsługa Hyper Transport oraz Cool'n'Quiet
FSB	Obsługa HyperTransport o szerokości pasma do 1 GHz	Obsługa HyperTransport o szerokości pasma do 1 GHz
Chipset	nVIDIA nForce 520	nVIDIA nForce 560
Pamięć główna	Gniazda DDR2 DIMM x 4 Każde gniazdo DIMM obsługuje moduły 256/512MB oraz 1GB/2GB DDR2 Maks. wielkość pamięci 8GB Moduł pamięci DDR2 z trybem podwójnego kanału Obsługa DDR2 533 / 667 / 800 Brak obsługi Registered DIMM oraz ECC DIMM	Gniazda DDR2 DIMM x 4 Każde gniazdo DIMM obsługuje moduły 256/512MB oraz 1GB/2GB DDR2 Maks. wielkość pamięci 8GB Moduł pamięci DDR2 z trybem podwójnego kanału Obsługa DDR2 533 / 667 / 800 Brak obsługi Registered DIMM oraz ECC DIMM
Super I/O	ITE 8716F Zapewnia najbardziej powszechne funkcje Super I/O. Interfejs Low Pin Count Funkcje kontroli warunków pracy, Monitor H/W Kontroler prędkości wentylatora Funkcja ITE "Smart Guardian"	ITE 8716F Zapewnia najbardziej powszechne funkcje Super I/O. Interfejs Low Pin Count Funkcje kontroli warunków pracy, Monitor H/W Kontroler prędkości wentylatora Funkcja ITE "Smart Guardian"
IDE	Zintegrowany kontroler IDE Ultra DMA 33 / 66 / 100 / 133 Tryb Bus Master obsługa PIO tryb 0~4,	Zintegrowany kontroler IDE Ultra DMA 33 / 66 / 100 / 133 Tryb Bus Master obsługa PIO tryb 0~4,
SATA II	Zintegrowany kontroler Serial ATA Transfer danych do 3 Gb/s. Zgodność ze specyfikacją SATA w wersji 2.0.	Zintegrowany kontroler Serial ATA Transfer danych do 3 Gb/s. Zgodność ze specyfikacją SATA w wersji 2.0.
LAN	Realtek RTL 8110SC / RTL 8100C (opcja) 10 / 100 / 1000 Mb/s z automatyczną negocjacją szybkości (Pasmo gigabitowe wyłącznie dla RTL 8110SC) Działanie w trybie połowicznego / pełnego dupleksu	Realtek RTL 8110SC / RTL 8100C (opcja) 10 / 100 / 1000 Mb/s z automatyczną negocjacją szybkości (Pasmo gigabitowe wyłącznie dla RTL 8110SC) Działanie w trybie połowicznego / pełnego dupleksu

	TF520 A2+	*TF560 A2+*
Kodek dźwiękowy	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1 kanałowe wyjście audio (ALC888) 5.1 kanałowe wyjście audio (ALC662) Obsługa High-Definition Audio	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1 kanałowe wyjście audio (ALC888) 5.1 kanałowe wyjście audio (ALC662) Obsługa High-Definition Audio
Gniazda	Gniazdo PCI x3 Gniazdo PCI Express x16 x1 Gniazdo PCI Express x 1 x2	Gniazdo PCI x3 Gniazdo PCI Express x16 x1 Gniazdo PCI Express x 1 x2
Złącza wbudowane	Złącze napędu dyskietek x1 Złącze Port drukarki x1 Złącze IDE x1 Złącze SATA x4 Złącze panela przedniego x1 Przednie złącze audio x1 Złącze wejścia CD x1 Złącze wyjścia S/PDIF x1 Złącze główkowe wentylatora procesorax1 Złącze główkowe wentylatora systemowegox2 Złącze główkowe kasowania CMOS x1 Złącze USB x2 Złącze zasilania (24 pinowe) x1 Złącze zasilania (4 pinowe) x2	Złącze napędu dyskietek x1 Złącze Port drukarki x1 Złącze IDE x1 Złącze SATA x4 Złącze panela przedniego x1 Przednie złącze audio x1 Złącze wejścia CD x1 Złącze wyjścia S/PDIF x1 Złącze główkowe wentylatora procesorax1 Złącze główkowe wentylatora systemowegox2 Złącze główkowe kasowania CMOS x1 Złącze USB x2 Złącze zasilania (24 pinowe) x1 Złącze zasilania (4 pinowe) x2
Back Panel I/O	Klawiatura PS/2 x1 Mysz PS/2 x1 Port szeregowy x1 Port LAN x1 Port USB x6 Gniazdo audio (Ver 5.x) x6 Gniazdo audio (Ver 6.x) x3	Klawiatura PS/2 x1 Mysz PS/2 x1 Port szeregowy x1 Port LAN x1 Port USB x6 Gniazdo audio (Ver 5.x) x6 Gniazdo audio (Ver 6.x) x3
Wymiary płyty	244 mm (S) X 305 mm (W)	244 mm (S) X 305 mm (W)
Funkcje specjalne	NVIDIA nTunes. Obsługa RAID 0 / 1 / 0+1	NVIDIA nTunes. Obsługa RAID 0 / 1 / 0+1 / 5
Obsluga systemu operacyjnego	Windows 2K / XP / VISTA Biostar zastrzega sobie prawo dodawania lub odwoływania obsługi dowolnego systemu operacyjnego bez powiadomienia.	Windows 2K / XP / VISTA Biostar zastrzega sobie prawo dodawania lub odwoływania obsługi dowolnego systemu operacyjnego bez powiadomienia.

Russian

	TF520 A2+	TF560 A2+
CPU (центральный процессор)	Гнездо AM2 / AM2+ (Обновлением BIOS) Процессоры AMD Athlon 64 / Athlon 64 x2 / Sempron Архитектура AMD 64 разрешать обработка данных на 32 и 64 бит Поддержка Hyper Transport и Cool'n'Quiet	Гнездо AM2 / AM2+ (Обновлением BIOS) Процессоры AMD Athlon 64 / Athlon 64 x2 / Sempron Архитектура AMD 64 разрешать обработка данных на 32 и 64 бит Поддержка Hyper Transport и Cool'n'Quiet
FSB	Поддержка HyperTransport с пропускной способностью до1GГц	Поддержка HyperTransport с пропускной способностью до1GГц
Набор микросхем	nVIDIA nForce 520	nVIDIA nForce 560
Основная память	Слоты DDR2 DIMM x 4 Каждый модуль DIMM поддерживает 256/512МБ & 1ГБ/2ГБ DDR2 Максимальная ёмкость памяти 8 ГБ Модуль памяти с двухканальным режимом DDR2 Поддержка DDR2 533 / 667 / 800 Не поддерживает зарегистрированные модули DIMM and ECC DIMM	Слоты DDR2 DIMM x 4 Каждый модуль DIMM поддерживает 256/512МБ & 1ГБ/2ГБ DDR2 Максимальная ёмкость памяти 8 ГБ Модуль памяти с двухканальным режимом DDR2 Поддержка DDR2 533 / 667 / 800 Не поддерживает зарегистрированные модули DIMM and ECC DIMM
Super I/O	ITE 8716F Обеспечивает наиболее используемые действующие функциональные возможности Super I/O. Интерфейс с низким количеством выводов Инициативы по охране окружающей среды, Аппаратный монитор Регулятор скорости Функция ITE "Smart Guardian" (Интеллектуальная защита)	ITE 8716F Обеспечивает наиболее используемые действующие функциональные возможности Super I/O. Интерфейс с низким количеством выводов Инициативы по охране окружающей среды, Аппаратный монитор Регулятор скорости Функция ITE "Smart Guardian" (Интеллектуальная защита)
IDE	Встроенное устройство управления встроенными интерфейсами устройств Режим "хозяина" шины Ultra DMA 33 / 66 / 100 / 133 Поддержка режима PIO 0~4,	Встроенное устройство управления встроенными интерфейсами устройств Режим "хозяина" шины Ultra DMA 33 / 66 / 100 / 133 Поддержка режима PIO 0~4,
SATA II	Встроенное последовательное устройство управления ATA скорость передачи данных до 3 гигабит/с. Соответствие спецификации SATA версия 2.0.	Встроенное последовательное устройство управления ATA скорость передачи данных до 3 гигабит/с. Соответствие спецификации SATA версия 2.0.
Локальная сеть	Realtek RTL 8110SC / RTL 8100C (дополнительно) Автоматическое согласование 10 / 100 / 1000 Мб/с (гигабитная пропускная способность только для гигабитного физического уровня) Частичная / полная дуплексная способность	Realtek RTL 8110SC / RTL 8100C (дополнительно) Автоматическое согласование 10 / 100 / 1000 Мб/с (гигабитная пропускная способность только для гигабитного физического уровня) Частичная / полная дуплексная способность

	TF520 A2+	TF560 A2+
Звуковой кодек	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1канальный звуковой выход (ALC888) 5.1канальный звуковой выход (ALC662) Звуковая поддержка High-Definition	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1канальный звуковой выход (ALC888) 5.1канальный звуковой выход (ALC662) Звуковая поддержка High-Definition
Слоты	Слот PCI x3 Слот PCI Express x16 x1 Слот PCI Express x 1 x2	Слот PCI x3 Слот PCI Express x16 x1 Слот PCI Express x 1 x2
Встроенный разъём	Разъём НГМД x1 Разъём Порт подключения принтерах1 Разъём IDE x1 Разъём SATA x4 Разъём на лицевой панели x1 Входной звуковой разъём x1 Разъём ввода для CD x1 Разъём вывода для S/PDIF x1 Контактирующее приспособление вентилятора центрального процессорах1 Контактирующее приспособление вентилятора системы x2 Открытое контактирующее приспособление CMOS x1 USB-разъём x2 Разъем питания (24 вывод) x1 Разъем питания (4 вывод) x2	Разъём НГМД x1 Разъём Порт подключения принтерах1 Разъём IDE x1 Разъём SATA x4 Разъём на лицевой панели x1 Входной звуковой разъём x1 Разъём ввода для CD x1 Разъём вывода для S/PDIF x1 Контактирующее приспособление вентилятора центрального процессорах1 Контактирующее приспособление вентилятора системы x2 Открытое контактирующее приспособление CMOS x1 USB-разъём x2 Разъем питания (24 вывод) x1 Разъем питания (4 вывод) x2
Задняя панель средств ввода-вывода	Клавиатура PS/2 x1 Мышь PS/2 x1 Последовательный порт x1 Порт LAN x1 USB-порт x6 Гнездо для подключения наушников (Ver 5.x) x6 Гнездо для подключения наушников (Ver 6.x) x3	Клавиатура PS/2 x1 Мышь PS/2 x1 Последовательный порт x1 Порт LAN x1 USB-порт x6 Гнездо для подключения наушников (Ver 5.x) x6 Гнездо для подключения наушников (Ver 6.x) x3
Размер панели	244 мм (Ш) X 305 мм (В)	244 мм (Ш) X 305 мм (В)
Специальные технические характеристики	NVIDIA nTunes Поддержка RAID 0 / 1 / 0+1	NVIDIA nTunes Поддержка RAID 0 / 1 / 0+1 / 5
Поддержка OS	Windows 2K / XP / VISTA Biostar сохраняет за собой право добавлять или удалять средства обеспечения для OS с или без предварительного уведомления.	Windows 2K / XP / VISTA Biostar сохраняет за собой право добавлять или удалять средства обеспечения для OS с или без предварительного уведомления.

ARABIC

TF560 A2+	TF520 A2+	
AM2 / (أبـــدتي بــس بــي) AM2+ مقبس AMD Athlon 64 / معالجات Athlon 64 x2 / Sempron إجراء العمليات الحلسوبية بسرعة 32 و 64 بت AMD 64 تمكن تقنية Cool'n'Quiet و Hyper Transport تدعم تقنية	AM2 / (أبـــدتي بــس بــي) AM2+ مقبس AMD Athlon 64 / معالجات Athlon 64 x2 / Sempron إجراء العمليات الحلسوبية بسرعة 32 و 64 بت AMD 64 تمكن تقنية Cool'n'Quiet و Hyper Transport تدعم تقنية	وحدة المعالجة المركزية
تردد 1000 بتردد يصل إلى HyperTransport تدعم تقنية	تردد 1000 بتردد يصل إلى HyperTransport تدعم تقنية	الناقل الأمامي الجانبي
nVIDIA nForce 560	nVIDIA nForce 520	مجموعة الشرائح
قتحة DDR2 DIMM عدد 4 ميجا 256/512 سعة DDR2 تدعم ذاكرة من نوع DIMM تدعم كل فتحة بليت و 2/1 جيجا بليت سعة ذاكرة قصوى 8 جيجا بليت مزدوجة القناة DDR2 وحدة ذاكرة ميجا بليت 800 / 667 / 533 سعات DDR2 تدعم الذاكرة من نوع ECC وتلك التي لا تتوافق مع DIMM لا تدعم رقائق الذاكرة	قتحة DDR2 DIMM عدد 4 ميجا 256/512 سعة DDR2 تدعم ذاكرة من نوع DIMM تدعم كل فتحة بليت و 2/1 جيجا بليت سعة ذاكرة قصوى 8 جيجا بليت مزدوجة القناة DDR2 وحدة ذاكرة ميجا بليت 800 / 667 / 533 سعات DDR2 تدعم الذاكرة من نوع ECC وتلك التي لا تتوافق مع DIMM لا تدعم رقائق الذاكرة	الذاكرة الرئيسية
ITE 8716F الأكثر استخداماً. Super I/O توفر وظيفة Low Pin Count Interface تدعم تقنية وسائل التحكم في البيئة: مراقب لمعرفة حالة الأجهزة مراقب في سرعة المروحة ITE من "Smart Guardian" وظيفة	ITE 8716F الأكثر استخداماً. Super I/O توفر وظيفة Low Pin Count Interface تدعم تقنية وسائل التحكم في البيئة: مراقب لمعرفة حالة الأجهزة مراقب في سرعة المروحة ITE من "Smart Guardian" وظيفة	Super I/O
متكامل IDE متحكم Ultra DMA 33 / 66 / 100 / 133 ناقل بتقنية وضع رئيسي PIO Mode 0~4 دعم وضع	متكامل IDE متحكم Ultra DMA 33 / 66 / 100 / 133 ناقل بتقنية وضع رئيسي PIO Mode 0~4 دعم وضع	منفذ IDE
متكامل Serial ATA متحكم نقل البيانات بسرعات تصل إلى 3 جيجابت/ثانية. 2.0. الإصدار SATA مطابقة لمواصفات	متكامل Serial ATA متحكم نقل البيانات بسرعات تصل إلى 3 جيجابت/ثانية. 2.0. الإصدار SATA مطابقة لمواصفات	SATA II
Realtek RTL 8110SC / RTL 8100C (اختياري) تفاوض تلقائي 100/10 ميجابليت / ثانية و 1 جيجابت/ثانية RTL 8110SC النطاق الترددي للجيجابت مقصور فقط على إمكانية النقل المزدوج الكامل/النصفي	Realtek RTL 8110SC / RTL 8100C (اختياري) تفاوض تلقائي 100/10 ميجابليت / ثانية و 1 جيجابت/ثانية RTL 8110SC النطاق الترددي للجيجابت مقصور فقط على إمكانية النقل المزدوج الكامل/النصفي	شبكة داخلية

TF560 A2+		TF520 A2+		
ALC888 (Ver 5.x) / ALC662 (Ver 6.x)		ALC888 (Ver 5.x) / ALC662 (Ver 6.x)		كوديك الصوت
قنوات لخرج الصوت 7.1(ALC888)		قنوات لخرج الصوت 7.1(ALC888)		
قنوات لخرج الصوت 5.1(ALC662)		قنوات لخرج الصوت 5.1(ALC662)		
تدعم تقنية الصوت عالي التعريف من		تدعم تقنية الصوت عالي التعريف من		
عدد 3	فتحة PCI	عدد 3	فتحة PCI	الفتحات
عدد 1	فتحة PCI Express x16	عدد 1	فتحة PCI Express x16	
عدد 2	فتحة PCI Express x 1	عدد 2	فتحة PCI Express x 1	
عدد 1	منفذ محرك أقراص مرنة	عدد 1	منفذ محرك أقراص مرنة	المنافذ على سطح اللوحة
عدد 1	منفذ طابعة	عدد 1	منفذ طابعة	
عدد 1	منفذ IDE	عدد 1	منفذ IDE	
عدد 4	منفذ SATA	عدد 4	منفذ SATA	
عدد 1	منفذ اللوحة الأمامية	عدد 1	منفذ اللوحة الأمامية	
عدد 1	منفذ الصوت الأمامي	عدد 1	منفذ الصوت الأمامي	
عدد 1	منفذ CD-IN	عدد 1	منفذ CD-IN	
عدد 1	منفذ خرج S/PDIF	عدد 1	منفذ خرج S/PDIF	
عدد 1	وصلة مروحة وحدة المعالجة المركزية	عدد 1	وصلة مروحة وحدة المعالجة المركزية	
عدد 2	وصلة مروحة النظام	عدد 2	وصلة مروحة النظام	
عدد 1	وصلة مسح CMOS	عدد 1	وصلة مسح CMOS	
عدد 2	منفذ USB	عدد 2	منفذ USB	
عدد 1	منفذ توصيل الطاقة (24 دبوس)	عدد 1	منفذ توصيل الطاقة (24 دبوس)	
عدد 2	منفذ توصيل الطاقة (4 دبابيس)	عدد 2	منفذ توصيل الطاقة (4 دبابيس)	
عدد 1	لوحة مفاتيح PS/2	عدد 1	لوحة مفاتيح PS/2	منافذ دخل/خرج اللوحة الخلفية
عدد 1	ماوس PS/2	عدد 1	ماوس PS/2	
عدد 1	منفذ تسلسلي	عدد 1	منفذ تسلسلي	
عدد 1	منفذ شبكة اتصال محلية	عدد 1	منفذ شبكة اتصال محلية	
عدد 6	منافذ USB	عدد 6	منافذ USB	
عدد 6	مقبس صوت (Ver 5.x)	عدد 6	مقبس صوت (Ver 5.x)	
عدد 3	مقبس صوت (Ver 6.x)	عدد 3	مقبس صوت (Ver 6.x)	
NVIDIA nTunes		NVIDIA nTunes		مزايا خاصة
تدعم تقنية RAID 0 / 1 / 0+1 / 5		تدعم تقنية RAID 0 / 1 / 0+1		
244 مم (عرض) X 305 مم (ارتفاع)		244 مم (عرض) X 305 مم (ارتفاع)		حجم اللوحة
Windows 2K / XP / VISTA		Windows 2K / XP / VISTA		دعم أنظمة التشغيل
تحتفظ Biostar بحقها في إضافة أو إزالة الدعم لأي نظام تشغيل بإخطار أو بدون إخطار.		تحتفظ Biostar بحقها في إضافة أو إزالة الدعم لأي نظام تشغيل بإخطار أو بدون إخطار.		

JAPANESE

	TF520 A2+	TF560 A2+
CPU	Socket AM2 / AM2+ (BIOSアップデートで) AMD Athlon 64 / Athlon 64 x2 / Sempron プロセッサ AMD 64アーキテクチャでは、32ビットと64ビット計算が可能です ハイパートランスポートとクールアンドクワイアットをサポートします	Socket AM2 / AM2+ (BIOSアップデートで) AMD Athlon 64 / Athlon 64 x2 / Sempron プロセッサ AMD 64アーキテクチャでは、32ビットと64ビット計算が可能です ハイパートランスポートとクールアンドクワイアットをサポートします
FSB	1 GHz のバンド幅までハイパートランスポートをサポートします	1 GHz のバンド幅までハイパートランスポートをサポートします
チップセット	nVIDIA nForce 520	nVIDIA nForce 560
メインメモリ	DDR2 DIMMスロット x 4 各DIMMは 256/512MB & 1GB/2GB DDR2をサポート 最大メモリ容量8GB デュアル チャンネルモードDDR2 メモリモジュール DDR2 533 / 667 / 800をサポート 登録済みDIMMとECC DIMMはサポートされません	DDR2 DIMMスロット x 4 各DIMMは 256/512MB & 1GB/2GB DDR2をサポート 最大メモリ容量8GB デュアル チャンネルモードDDR2 メモリモジュール DDR2 533 / 667 / 800をサポート 登録済みDIMMとECC DIMMはサポートされません
Super I/O	ITE 8716F もっとも一般に使用されるレガシーSuper I/O機能を採用しています。 低ピンカウントインターフェイス 環境コントロールイニシアチブ、 H/Wモニター ファン速度コントローラ/ モニター ITEの「スマートガーディアン」機能	ITE 8716F もっとも一般に使用されるレガシーSuper I/O機能を採用しています。 低ピンカウントインターフェイス 環境コントロールイニシアチブ、 H/Wモニター ファン速度コントローラ/ モニター ITEの「スマートガーディアン」機能
IDE	統合IDEコントローラ Ultra DMA 33 / 66 / 100 / 133バスマスタモード PIO Mode 0~4のサポート、	統合IDEコントローラ Ultra DMA 33 / 66 / 100 / 133バスマスタモード PIO Mode 0~4のサポート、
SATA II	統合シリアルATA コントローラ 最高3 Gb/秒のデータ転送速度 SATAバージョン2.0仕様に準拠。	統合シリアルATA コントローラ 最高3 Gb/秒のデータ転送速度 SATAバージョン2.0仕様に準拠。
LAN	Realtek RTL 8110SC / RTL 8100C(オプション) 10 / 100 / 1000 Mb/秒のオートネゴシエーション (Gigabitバンド幅はRTL 8110SC専用です) 半/全二重機能	Realtek RTL 8110SC / RTL 8100C(オプション) 10 / 100 / 1000 Mb/秒のオートネゴシエーション (Gigabitバンド幅はRTL 8110SC専用です) 半/全二重機能

	TF520 A2+		*TF560 A2+*	
サウンド Codec	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1チャンネルオーディオアウト (ALC888) 5.1チャンネルオーディオアウト (ALC662) ハイデフィニションオーディオのサポート		ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1チャンネルオーディオアウト (ALC888) 5.1チャンネルオーディオアウト (ALC662) ハイデフィニションオーディオのサポート	
スロット	PCIスロット	x3	PCIスロット	x3
	PCI Express x16スロット	x1	PCI Express x16スロット	x1
	PCI Express x 1スロット	x2	PCI Express x 1スロット	x2
オンボードコネクタ	フロッピーコネクタ	x1	フロッピーコネクタ	x1
	プリンタポートコネクタ	x1	プリンタポートコネクタ	x1
	IDEコネクタ	x1	IDEコネクタ	x1
	SATAコネクタ	x4	SATAコネクタ	x4
	フロントパネルコネクタ	x1	フロントパネルコネクタ	x1
	フロントオーディオコネクタ	x1	フロントオーディオコネクタ	x1
	CDインコネクタ	x1	CDインコネクタ	x1
	S/PDIFアウトコネクタ	x1	S/PDIFアウトコネクタ	x1
	CPUファンヘッダ	x1	CPUファンヘッダ	x1
	システムファンヘッダ	x2	システムファンヘッダ	x2
	CMOSクリアヘッダ	x1	CMOSクリアヘッダ	x1
	USBコネクタ	x2	USBコネクタ	x2
	電源コネクタ(24ピン)	x1	電源コネクタ(24ピン)	x1
	電源コネクタ(4ピン)	x2	電源コネクタ(4ピン)	x2
背面パネル I/O	PS/2キーボード	x1	PS/2キーボード	x1
	PS/2マウス	x1	PS/2マウス	x1
	シリアルポート	x1	シリアルポート	x1
	LANポート	x1	LANポート	x1
	USBポート	x6	USBポート	x6
	オーディオジャック(Ver 5.x)	x6	オーディオジャック(Ver 5.x)	x6
	オーディオジャック(Ver 6.x)	x3	オーディオジャック(Ver 6.x)	x3
ボードサイズ	244 mm (幅) X 305 mm (高さ)		244 mm (幅) X 305 mm (高さ)	
特殊機能	NVIDIA nTunes RAID 0 / 1 / 0+1のサポート		NVIDIA nTunes RAID 0 / 1 / 0+1 / 5 のサポート	
OSサポート	Windows 2K / XP / VISTA Biostarは事前のサポートなしにOSサポートを追加または削除する権利を留保します。		Windows 2K / XP / VISTA Biostarは事前のサポートなしにOSサポートを追加または削除する権利を留保します。	

2007/05/21

TF520 A2+/TF560 A2+ BIOS Manual

BIOS Setup

Introduction

The purpose of this manual is to describe the settings in the Phoenix-Award™ BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to CMOS RAM. The power of CMOS RAM is supplied by a battery so that it retains the Setup information when the power is turned off.
Basic Input-Output System (BIOS) determines what a computer can do without accessing programs from a disk. This system controls most of the input and output devices such as keyboard, mouse, serial ports and disk drives. BIOS activates at the first stage of the booting process, loading and executing the operating system. Some additional features, such as virus and password protection or chipset fine-tuning options are also included in BIOS.
The rest of this manual will to guide you through the options and settings in BIOS Setup.

Plug and Play Support

This PHOENIX-AWARD BIOS supports the Plug and Play Version 1.0A specification and ESCD (Extended System Configuration Data) write.

EPA Green PC Support

This PHOENIX-AWARD BIOS supports Version 1.03 of the EPA Green PC specification.

APM Support

This PHOENIX-AWARD BIOS supports Version 1.1&1.2 of the Advanced Power Management (APM) specification. Power management features are implemented via the System Management Interrupt (SMI). Sleep and Suspend power management modes are supported. Power to the hard disk drives and video monitors can also be managed by this PHOENIX-AWARD BIOS.

ACPI Support

Phoenix-Award ACPI BIOS support Version 1.0b of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

PCI Bus Support

This PHOENIX-AWARD BIOS also supports Version 3.0 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

DRAM Support

DDR SDRAM (Double Data Rate Synchronous DRAM) is supported.

Supported CPUs

This PHOENIX-AWARD BIOS supports the AMD CPU.

Using Setup

Use the arrow keys to highlight items in most of the place, press <Enter> to select, use the <PgUp> and <PgDn> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program by using the keyboard.

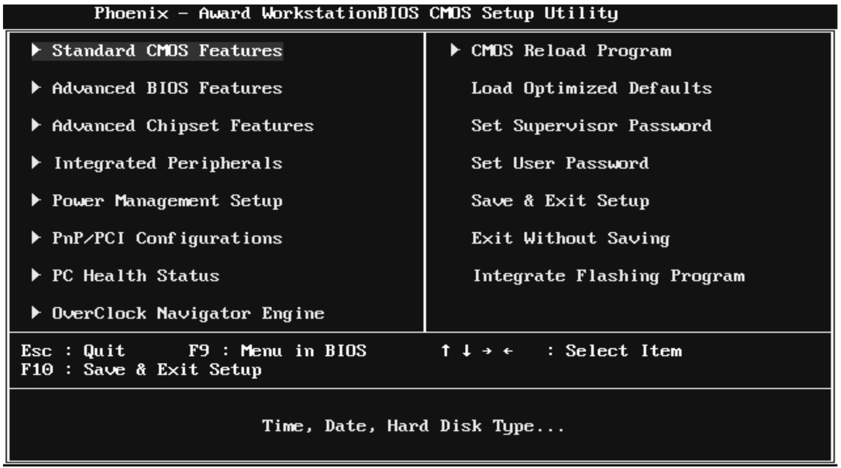
Keystroke	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left (menu bar)
Right arrow	Move to the item on the right (menu bar)
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ Key	Increase the numeric value or make changes
- Key	Decrease the numeric value or make changes
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu – Exit Current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

1 Main Menu

Once you enter Phoenix-Award BIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

> *!! WARNING !!*
>
> For better system performance, the BIOS firmware is being continuously updated. The BIOS information described in this manual (**Figure 1, 2, 3, 4, 5, 6, 7, 8, 9**) is for your reference only. The actual BIOS information and settings on board may be slightly different from this manual.

- **Figure 1: Main Menu**



Standard CMOS Features

This submenu contains industry standard configurable options.

Advanced BIOS Features

This submenu allows you to configure advanced features of the BIOS.

Advanced Chipset Features

This submenu allows you to configure special chipset features.

Integrated Peripherals

This submenu allows you to configure certain IDE hard drive options and Programmed Input/ Output features.

Power Management Setup

This submenu allows you to configure the power management features.

PnP/PCI Configurations

This submenu allows you to configure certain "Plug and Play" and PCI options.

PC Health Status

This submenu allows you to monitor the hardware of your system.

OverClock Navigator Engine (O.N.E.)

ONE provides two powerful overclock engines, MOS & AOS for both overclock expertise and beginner.

CMOS Reload Program (C.R.P.)

The CMOS Reload Program (CRP) allows you to save different CMOS settings into BIOS-ROM.

Load Optimized Defaults

This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system. A confirmation message will be displayed before defaults are set.



Set Supervisor Password

Setting the supervisor password will prohibit everyone except the supervisor from making changes using the CMOS Setup Utility. You will be prompted with to enter a password.



Set User Password

If the Supervisor Password is not set, then the User Password will function in the same way as the Supervisor Password. If the Supervisor Password is set and the User Password is set, the "User" will only be able to view configurations but will not be able to change them.



Save & Exit Setup

Save all configuration changes to CMOS (memory) and exit setup. Confirmation message will be displayed before proceeding.



Exit Without Saving

Abandon all changes made during the current session and exit setup. Confirmation message will be displayed before proceeding.



Integrate Flashing Program

This is a very safe way to upgrade BIOS.

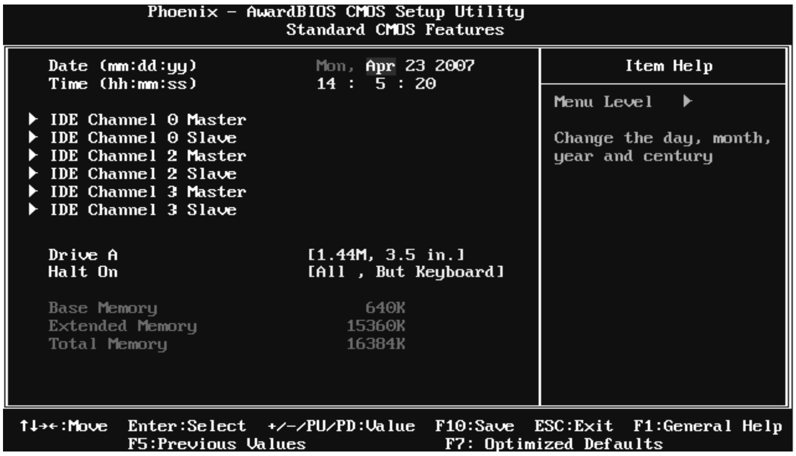
By pressing "Enter" key for three times, and the upgrading process will be completed easily.



2 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the<PgUp> or <PgDn> keys to select the value you want in each item.

- **Figure 2: Standard CMOS Setup**



Main Menu Selections

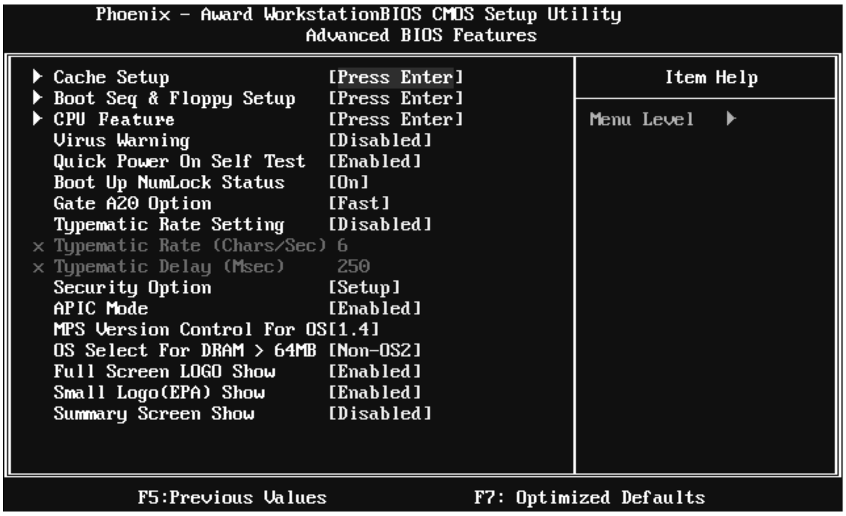
This table shows the items and the available options on the Main Menu.

Item	Options	Description
Date	mm : dd : yy	Set the system date. Note that the 'Day' automatically changes when you set the date.
Time	hh : mm : ss	Set the system internal clock.
IDE Channel 0/2/3 Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options
IDE Channel 0/2/3 Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.

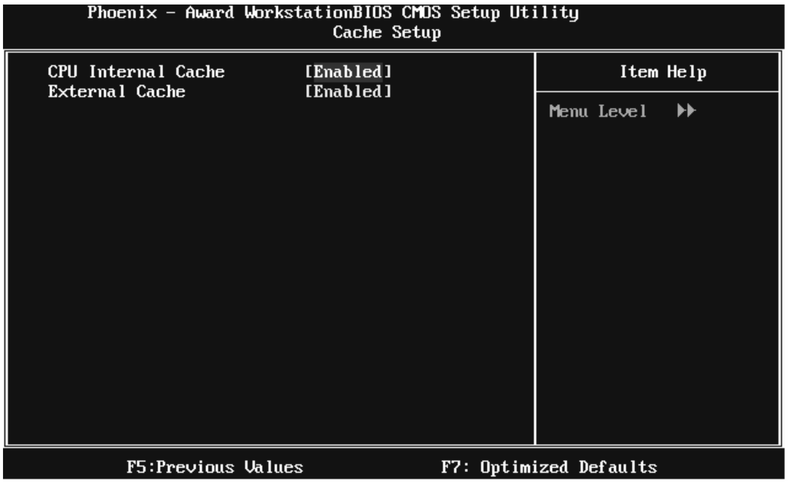
Item	Options	Description
Drive A	360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in None	Select the type of floppy disk drive installed in your system.
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/ Key	Select the situation in which you want the BIOS to stop the POST process and notify you.
Base Memory	N/A	Displays the amount of conventional memory detected during boot up.
Extended Memory	N/A	Displays the amount of extended memory detected during boot up.
Total Memory	N/A	Displays the total memory available in the system.

3 Advanced BIOS Features

■ **Figure 3: Advanced BIOS Setup**



Cache Setup



CPU Internal Cache

Depending on the CPU/chipset in use, you may be able to increase memory access time with this option.

Enabled (default) Enable cache.

Disabled Disable cache.

External Cache

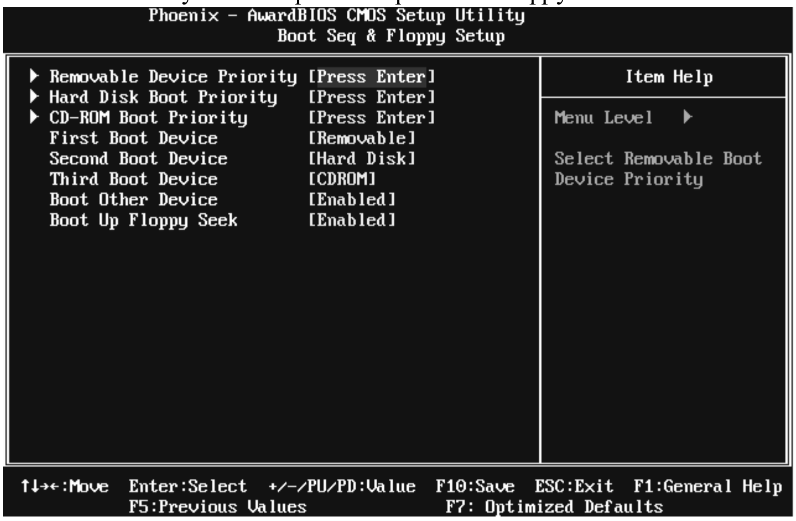
This option enables or disables "Level 2" secondary cache on the CPU, which may improve performance.

Enabled (default) Enable cache.

Disabled Disable cache.

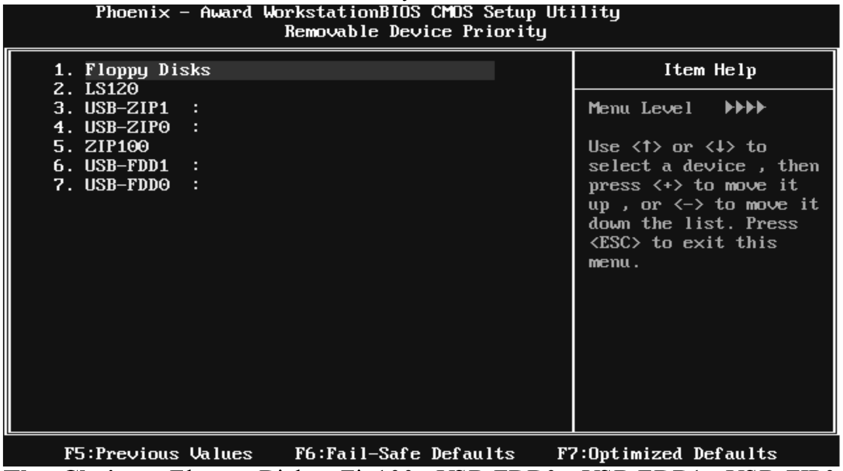
Boot Seq & Floppy Setup

This item allows you to setup boot sequence & Floppy.



Removable Device Priority

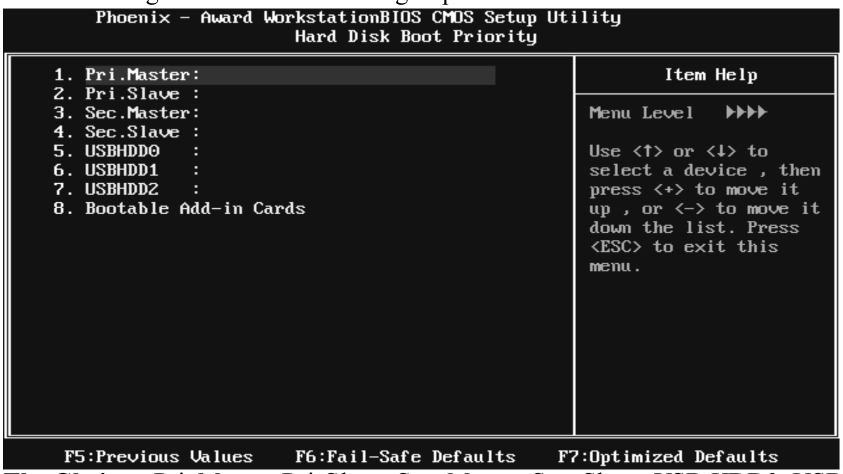
Select Removable Boot Device Priority.



The Choices: Floppy Disks, Zip100, USB-FDD0, USB-FDD1, USB-ZIP0, USB-ZIP1, LS120.

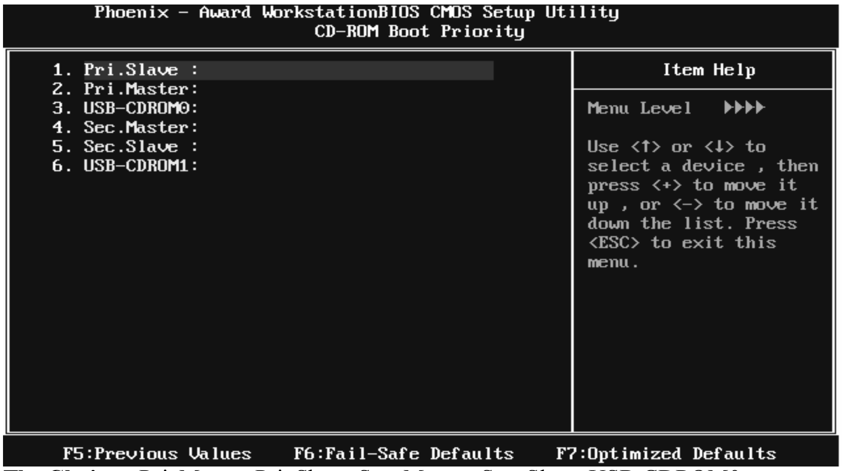
Hard Disk Boot Priority

The BIOS will attempt to arrange the Hard Disk boot sequence automatically. You can change the Hard Disk booting sequence here.



The Choices: Pri. Master, Pri. Slave, Sec. Master, Sec. Slave, USB HDD0, USB HDD1, USB HDD2, and Bootable Add-in Cards.

CD-ROM Boot Priority



The Choices: Pri. Master, Pri. Slave, Sec. Master, Sec. Slave, USB-CDROM0, USB-CDROM1.

First/Second/Third Boot Device

The BIOS will attempt to load the operating system in this order.

The Choices: Removable, Hard Disk, CDROM, Legacy LAN, Disabled.

Boot Other Device

When enabled, BIOS will try to load the operating system from other device when it failed to load from the three devices above.

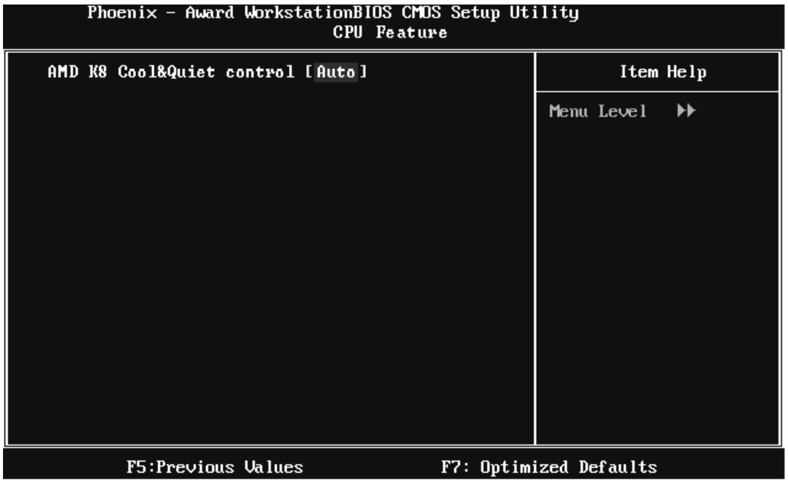
The Choices: Enabled (default), Disabled

Boot Up Floppy Seek

When enabled, System will test the floppy drives to determine if they have 40 or 80 tracks during boot up. Disabling this option reduces the time it takes to boot-up.

The Choices: Enabled (default), Disabled.

CPU Feature



AMD K8 Cool&Quiet control

The item allows you select K8 Cool'n'Quiet control.

The Choices: Auto (default), Disabled.

Virus Warning

This option allows you to choose the VIRUS Warning feature that is used to protect the IDE Hard Disk boot sector. If this function is enabled and an attempt is made to write to the boot sector, BIOS will display a warning message on the screen and sound an alarm beep.

Disabled (default)	Virus protection is disabled.
Enabled	Virus protection is activated.

Quick Power On Self Test

Enabling this option will cause an abridged version of the Power On Self-Test (POST) to execute after you power up the computer.

Disabled	Normal POST.
Enabled (default)	Enable quick POST.

Boot Up NumLock Status

Selects the NumLock State after the system switched on.
The Choices:

On (default)	Numpad is number keys.
Off	Numpad is arrow keys.

Gate A20 Option

Select if chipset or keyboard controller should control Gate A20.

Normal	A pin in the keyboard controller controls GateA20.
Fast (default)	Lets chipset control Gate A20.

Typematic Rate Setting

When a key is held down, the keystroke will repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be configured.
The Choices: Disabled (default), Enabled.

Typematic Rate (Chars/Sec)

Sets the rate at which a keystroke is repeated when you hold the key down.
The Choices: 6 (default), 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.
The Choices: 250 (default), 500, 750, 1000.

Security Option

This option will enable only individuals with passwords to bring the system online and/or to use the CMOS Setup Utility.
System: A password is required for the system to boot and is also required to access the Setup Utility.
Setup (default): A password is required to access the Setup Utility only.
This will only apply if passwords are set from the Setup main menu.

APIC MODE

Selecting Enabled enables APIC device mode reporting from the BIOS to the operating system.
The Choices: Enabled (default), Disabled.

MPS Version Control For OS

The BIOS supports version 1.1 and 1.4 of the Intel multiprocessor specification. Select version supported by the operation system running on this computer.
The Choices: 1.4 (default), 1.1.

OS Select For DRAM > 64MB

A choice other than Non-OS2 is only used for OS2 systems with memory exceeding 64MB.
The Choices: Non-OS2 (default), OS2.

Full Screen LOGO Show

This item allows you to enable/disable Full Screen LOGO Show.
The Choices: Enabled (default), Disabled.

Small Logo(EPA) Show

This item allows you to select whether the "Small Logo" shows. Enabled (default) "Small Logo" shows when system boots up. Disabled No "Small Logo" shows when system boots
The Choices: Enabled (default), Disabled.

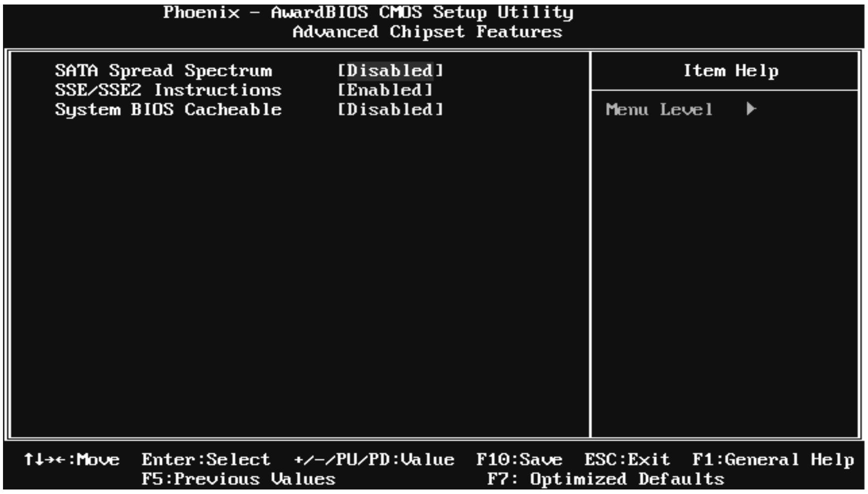
Summary Screen Show

This item allows you to enable/disable the summary screen. Summary screen means system configuration and PCI device listing.
The Choices: Disabled (default), Enabled.

4 Advanced Chipset Features

This submenu allows you to configure the specific features of the chipset installed on your system. This chipset manage bus speeds and access to system memory resources, such as DRAM. It also coordinates communications with the PCI bus. The default settings that came with your system have been optimized and therefore should not be changed unless you are suspicious that the settings have been changed incorrectly.

- **Figure 4: Advanced Chipset Setup**



SATA Spread Spectrum

This item allows you to enable/disable the Spread Spectrum function.
The Choices: Disabled (default), Enabled.

SSE/SSE2 instructions

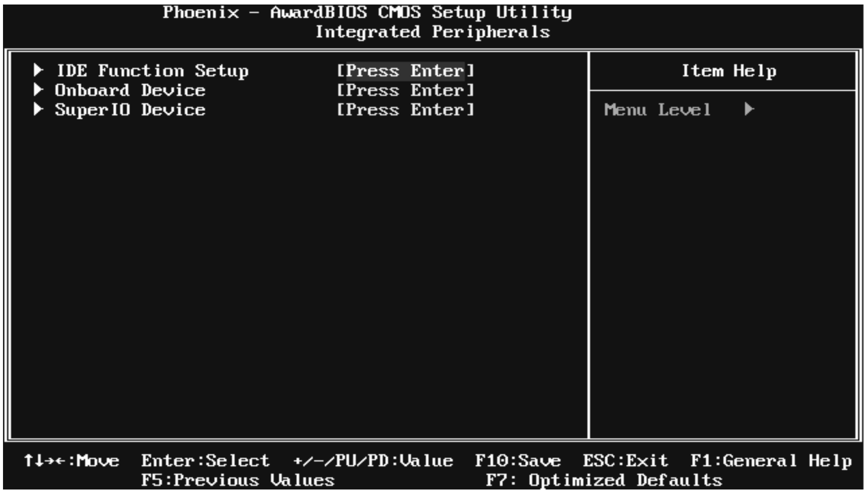
This item allows you to enable/disable SSE/SSE2 instruction.
The Choices: Enabled (default), Disabled.

System BIOS Cacheable

Selecting the "Enabled" option allows caching of the system BIOS ROM at F0000h-FFFFFh, which is able to improve the system performance. However, any programs that attempts to write to this memory block will cause conflicts and result in system errors.
The Choices: Disabled (default), Enabled.

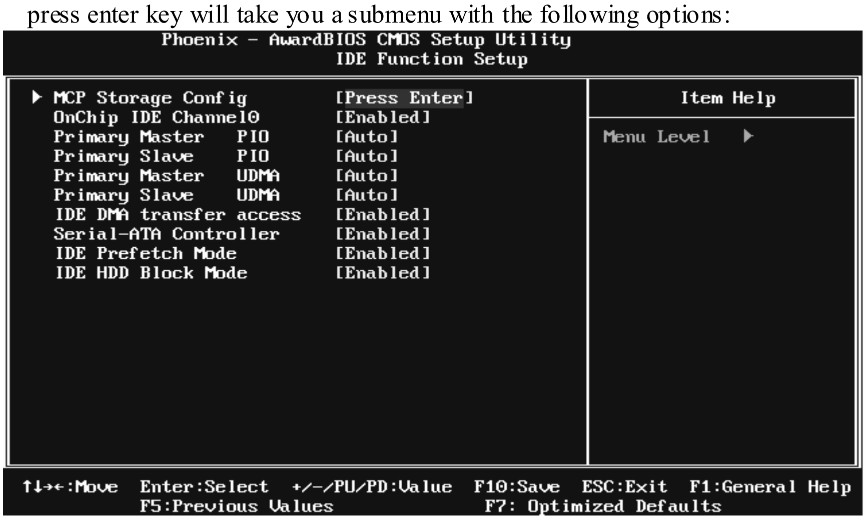
5 Integrated Peripherals

- **Figure 5. Integrated Peripherals**

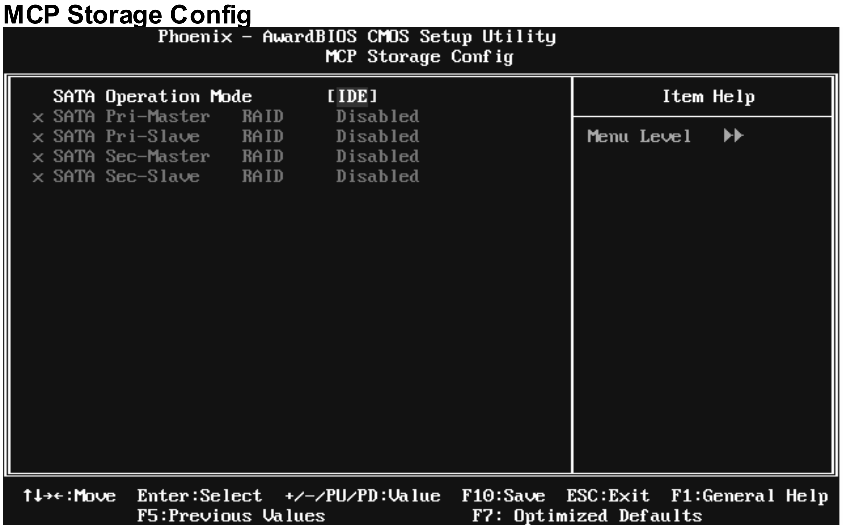


IDE Function Setup

Highlight the "Press Enter" label next to the "IDE Function Setup" label and press enter key will take you a submenu with the following options:



MCP Storage Config



SATA Operation Mode

This option allows you to choose SATA function.

The Choices: IDE (default), RAID, AHCI.

SATA Pri-/Sec- Master/Slave RAID

This option allows you to enable or disable SATA Primary/Secondary RAID.

The Choices: Disabled (default), Enabled.

OnChip IDE Channel 0

The motherboard chipset contains a PCI IDE interface with support for two IDE channels. Select "Enabled" to activate the first and/or second IDE interface. Select "Disabled" to deactivate an interface if you are going to install a primary and/or secondary add-in IDE interface.

The Choices: Enabled (default), Disabled.

Primary Master/Slave PIO

The IDE PIO (Programmed Input / Output) fields let you set a PIO mode (0-4) for each of the IDE devices that the onboard IDE interface supports. Modes 0 to 4 will increase performance progressively. In Auto mode, the system automatically determines the best mode for each device.

The Choices: Auto (default), Mode0, Mode1, Mode2, Mode3, Mode4.

Primary Master/Slave UDMA

Ultra DMA function can be implemented if it is supported by the IDE hard drives in your system. As well, your operating environment requires a DMA driver (Windows 95 or OSR2 may need a third party IDE bus master driver). If your hard drive and your system software both support Ultra DMA, select Auto to enable BIOS support.

The Choices: Auto (default), Disabled.

IDE DMA Transfer Access

This item allows you to enable or disable the IDE DMA transfer access.

The Choices: Enabled (default), Disabled.

Serial-ATA Controller

This item allows you to enable or disable the SATA controller.

The Choices: Enabled (default), Disabled.

IDE Prefetch Mode

The "onboard" IDE drive interfaces supports IDE prefetch function for faster drive access. If the interface on your drive does not support prefetching, or if you install a primary and/or secondary add-in IDE interface, set this option to "Disabled".

The Choices: Enabled (default), Disabled.

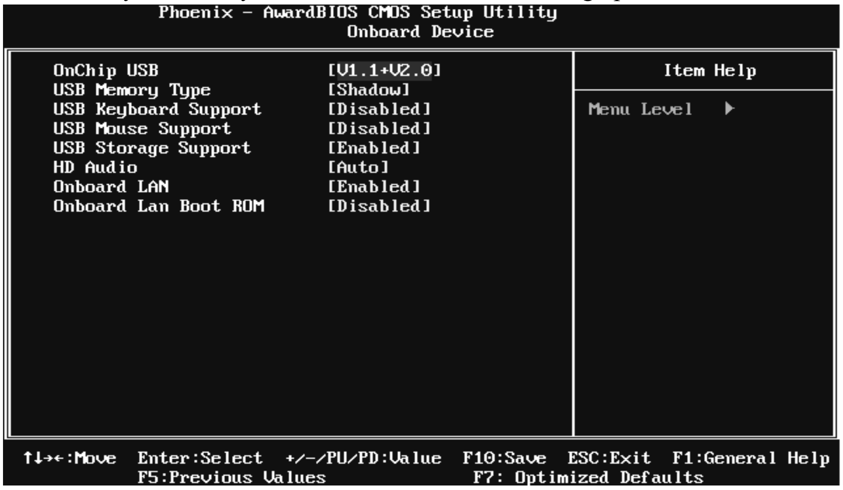
IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sectors read / write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read / write per sector where the drive can support.

The Choices: Enabled (default), Disabled.

Onboard Device

Highlight the "Press Enter" label next to the "Onboard Device" label and press the enter key will take you a submenu with the following options:



OnChip USB

This option should be enabled if your system has a USB installed on the system board. You may need to disable this feature if you add a higher performance controller.

The Choices: V1.1+V2.0 (default), Disabled, V1.1

USB Memory Type

This option allows you to choose the USB memory type.

The Choices: SHADOW (default), Base Memory(640K).

USB Keyboard Support

This item allows you to enable or disable the USB Keyboard Legacy Support.

Enabled Enable USB Keyboard Support.

Disabled (default) Disable USB Keyboard Support.

USB Mouse Support

This item allows you to enable or disable the USB Mouse Legacy Support.

Enabled	USB Mouse Support.
Disabled (default)	Disable USB Mouse Support.

USB Storage Support

This item allows you to enable or disable the USB storage device Legacy Support.

Enabled (default)	USB storage Support.
Disabled	Disable USB storage Support.

HD Audio

This option allows you to control the onboard HD audio.

The Choices: Auto (default), Disabled.

Onboard LAN

This option allows you to control the onboard LAN.

The Choices: Enabled (default), Disabled.

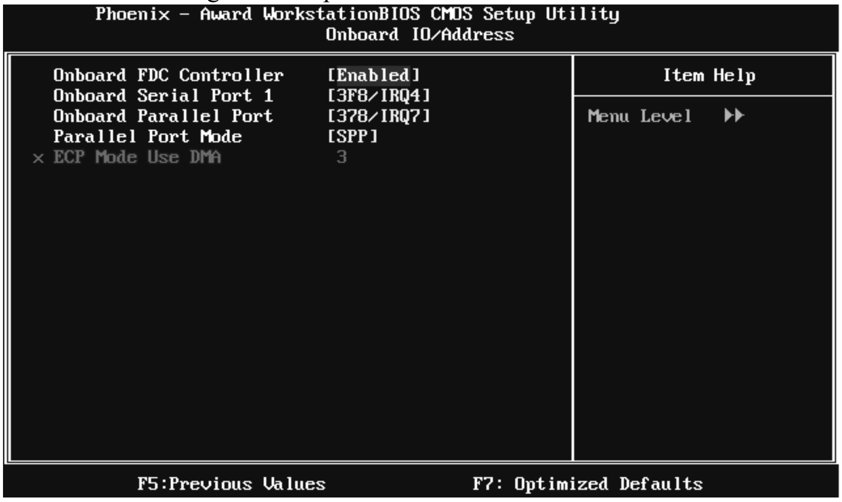
Onboard LAN Boot ROM

This item allows you to enable or disable the Onboard LAN Boot ROM.

The Choices: Disabled (default), Enabled.

SuperIO Device

Press Enter to configure the Super I/O device.



Onboard FDC Controller

Select enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you installed another FDC or the system uses no floppy drive, select disabled in this field.

The Choices: Enabled (default), Disabled.

Onboard Serial Port 1

Select an address and corresponding interrupt for the first and second serial ports.

The Choices: 3F8/IRQ4 (default), Disabled, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto.

Onboard Parallel Port

This item allows you to determine access onboard parallel port controller with which I/O Address.

The Choices: 378/IRQ7 (default), 278/IRQ5, 3BC/IRQ7, Disabled.

Parallel Port Mode

This item allows you to determine how the parallel port should function. The default value is SPP.

The Choices:

SPP (default)	Using Parallel port as Standard Printer Port.
EPP	Using Parallel Port as Enhanced Parallel Port.
ECP	Using Parallel port as Extended Capabilities Port.
ECP+EPP	Using Parallel port as ECP & EPP mode.

ECP Mode Use DMA

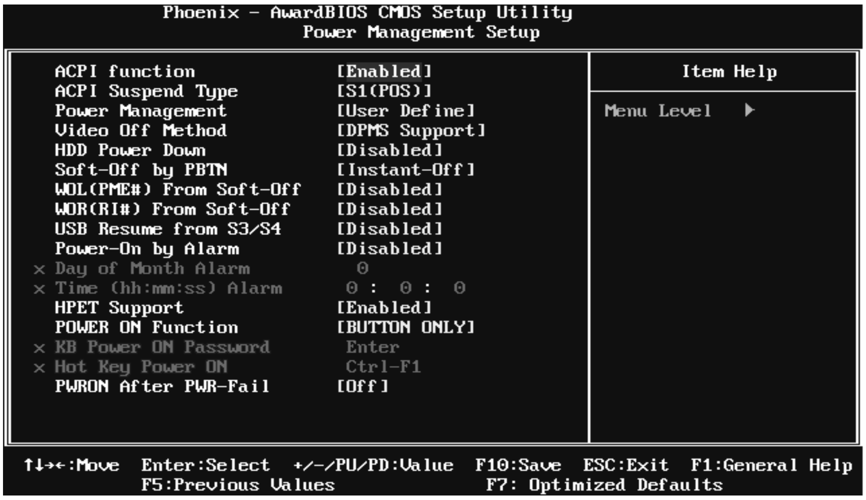
Select a DMA Channel for the port.

The Choices: 3 (default), 1.

6 Power Management Setup

The Power Management Setup Menu allows you to configure your system to utilize energy conservation and power up/power down features.

- **Figure 6. Power Management Setup**



ACPI Function

This item displays the status of the Advanced Configuration and Power Management (ACPI).

The Choices: Enabled (default), Disabled.

ACPI Suspend Type

The item allows you to select the suspend type under the ACPI operating system.

The Choices: **S1 (POS)** (default) Power on Suspend
S3 (STR) Suspend to RAM
S1 & S3 POS+STR

Power Management

This category allows you to select the power saving method and is directly related to the following modes:
1. HDD Power Down.
2. Suspend Mode.
There are three options of Power Management, three of which have fixed mode settings

Min. Power Saving
Minimum power management.
Suspend Mode = 1 hr.
HDD Power Down = 15 min

Max. Power Saving
Maximum power management only available for sl CPU's.
Suspend Mode = 1 min.
HDD Power Down = 1 min.

User Define (default)
Allow you to set each option individually.
When you choose user define, you can adjust each of the item from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min.

Video Off Method

This option determines the manner when the monitor goes blank.

V/H SYNC+Blank
This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen
This option only writes blanks to the video buffer.

DPMS Support (default)
Initial display power management signaling.

HDD Power Down

When enabled, the hard-disk drives will power down after a set time of system inactivity. All other devices remain active.
The Choices: Disabled (default), 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 6 Min, 7 Min, 8 Min, 9 Min, 10 Min, 11 Min, 12 Min, 13 Min, 14 Min, 15Min.

Soft-Off by PBTN

This item determines the behavior of system power button. Instant off turn off the power immediately, and Delay 4 Sec. will require you to press and hold the power button for 4 seconds to cut off the system power.
The Choices: Delay 4 Sec, **Instant-Off** (default).

WOL(PME#)/ From Soft-Off

This item allows you to enable or disable Wake On LAN from Soft-Off function.
The Choices: Disabled (default), Enabled.

WOR(RI#) From Soft-Off

This item allows you to enable or disable Wake On Ring from Soft-Off function.
The Choices: Disabled (default), Enabled.

USB Resume From S3/S4

This item allows you to enable or disabled the USB resume from S3/S4 function.
The Choices: Disabled (default), Enabled.

Power-On by Alarm

This function is for setting date and time for your computer to boot up. When enabled, you can choose the date and time to boot up the system.
The Choices: Disabled (default), Enabled.

Date (of Month) Alarm
You can choose which month the system will boot up.

Time (hh:mm:ss) Alarm
You can choose the system boot up time, input hour, minute and second to specify.
Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

HPET Support

This option allows you to disabled or enables the High Precision Event Timer.
The Choices: Enabled (default), Disabled.

POWER ON Function

This item allows you to choose the power on method.
The Choices: Button Only(default), Password, Hot Key, Mouse Move/Click, Mouse Double Click, Any Key, Keyboard 98.

KB Power ON Password

Input password and press Enter to set the Keyboard power on password.

Hot Key Power ON

Choose the Hot Key combination to boot up the system.
The Choices: Ctrl-F1(default), Ctrl-F2, Ctrl-F3, Ctrl-F4, Ctrl-F5, Ctrl-F6, Ctrl-F7, Ctrl-F8, Ctrl-F9, Ctrl-F10, Ctrl-F11, and Ctrl-F12.

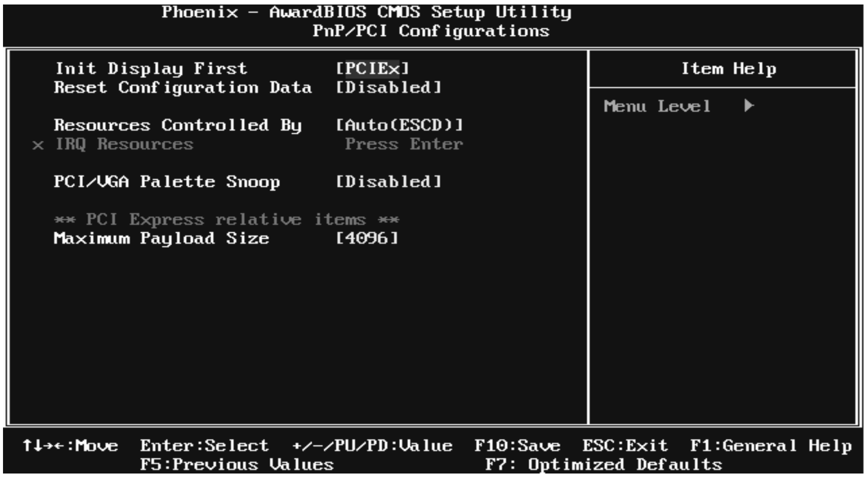
POWER After PWR-Fail

This setting specifies how your system should behave after a power fail or interrupts occurs. By choosing off will leave the computer in the power off state. Choosing On will reboot the computer. Former-Sts will restore the system to the status before power failure or interrupt occurs.
The Choices: Off (default), On, Former-Sts.

7 PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

- **Figure 7: PnP/PCI Configurations**



Init Display First

This item allows you to decide to active whether PCI Slot or on-chip VGA first.
The Choices: PCI Slot, **PCIEx** (default).

Reset Configuration Data

The system BIOS supports the PnP feature which requires the system to record which resources are assigned and protects resources from conflict.
Every peripheral device has a node, which is called ESCD. This node records which resources are assigned to it. The system needs to record and update ESCD to the memory locations. These locations are reserved in the system BIOS. If the Disabled (default) option is chosen, the system's ESCD will update only when the new configuration varies from the last one. If the Enabled option is chosen, the system is forced to update ESCDs and then is automatically set to the "Disabled" mode.
The above settings will be shown on the screen only if "Manual" is chosen for the resources controlled by function.
Legacy is the term, which signifies that a resource is assigned to the ISA Bus and provides non-PnP ISA add-on cards. PCI / ISA PnP signify that a resource is assigned to the PCI Bus or provides for ISA PnP add-on cards and peripherals.
The Choices: Disabled (default), Enabled.

Resources Controlled By

By Choosing **"Auto(ESCD)"** (default), the system BIOS will detect the system resources and automatically assign the relative IRQ and DMA channel for each peripheral. By Choosing "Manual", the user will need to assign IRQ & DMA for add-on cards. Be sure that there are no IRQ/DMA and I/O port conflicts.
The Choices: Auto (ESCD) (default), Manual.

IRQ Resources

This submenu will allow you to assign each system interrupt a type, depending on the type of device using the interrupt. When you press the "Press Enter" tag, you will be directed to a submenu that will allow you to configure the system interrupts. This is only configurable when "Resources Controlled By" is set to "Manual".

IRQ-5	assigned to PCI Device
IRQ-7	assigned to PCI Device
IRQ-9	assigned to PCI Device
IRQ-10	assigned to PCI Device
IRQ-11	assigned to PCI Device
IRQ-14	assigned to PCI Device

PCI / VGA Palette Snoop

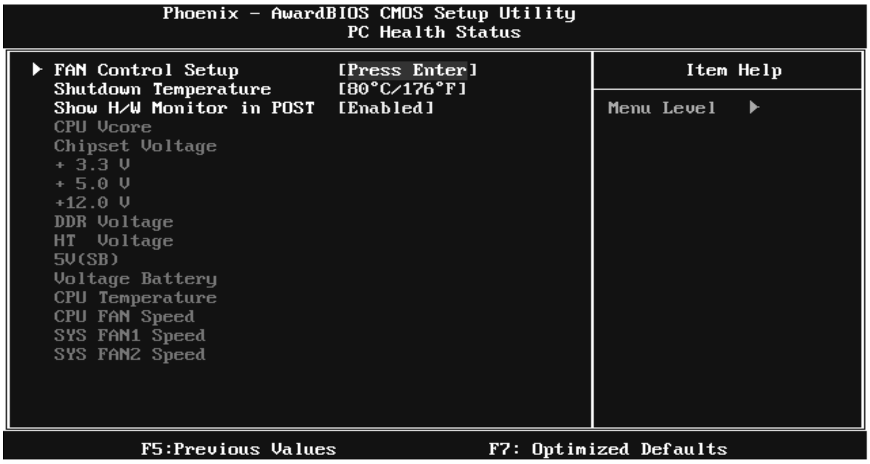
Some old graphic controllers need to "snoop" on the VGA palette and then map it to their display as a way to provide boot information and VGA compatibility. This item allows such snooping to take place.
The Choices: Disabled (default), Enabled

Maximum Payload Size

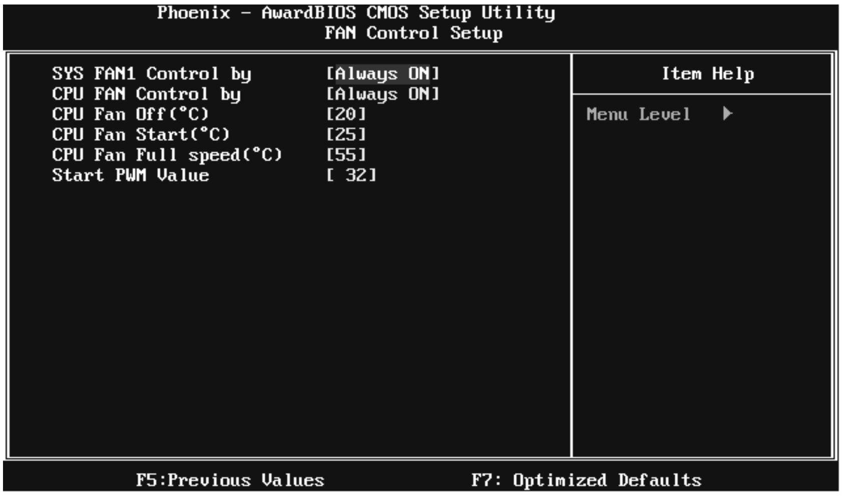
Set the maximum payload size for Transaction packets (TLP).
The Choice: 4096 (default.), 128, 256, 512, 1024, 2048.

8 PC Health Status

- **Figure 8: PC Health Status**



Fan Control Setup



SYS FAN1 Control By

The Choice "smart" can make your northbridge FAN to reduce noise.
The Choices: Always ON (default), Smart.

CPU FAN Control By

The Choice "smart" can make your CPU FAN to reduce noise.
The Choices: Always ON (default), Smart.

CPU Fan Off<℃>

If the CPU Temperature is lower than the set value, FAN will turn off.
The Choices: Min=0,.Max=20, Key in a DEC number.

CPU Fan Start<℃>

CPU fan starts to work under smart fan function when arrive this set value.
The Choices: Min=0,.Max=50, Key in a DEC number.

CPU Fan Full speed <℃>

When CPU temperature is reach the set value, the CPU fan will work under Full Speed.
The Choices: Min=0,.Max=80, Key in a DEC number.

Start PWM Value

When CPU temperature arrives to the set value, the CPU fan will work under Smart Fan Function mode. The range is from 0~127, with an interval of 1.
The Choices: Min=0,.Max=127, Key in a DEC number.

Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature. This item is only effective under Windows 98 ACPI mode.
The Choices: Disabled, 60℃/ 140°F, 65℃/ 149°F, 70℃/ 158°F, 75℃/ 167°F, **80℃/ 176°F** (Default), 85℃/ 185°F, 90℃/ 194°F.

Show H/W Monitor in POST

If you computer contains a monitoring system, it will show PC health status during POST stage. The item offers several different delay times.
The Choices: Enabled (default), Disabled.

CPU Vcore, Chipset Voltage, +3.3V, +5.0V, +12.0V, DDR Voltage, HT Voltage, 5V<SB>, Voltage Battery

Detect the system's voltage status automatically.

CPU Temperature

This field displays the current temperature of CPU.

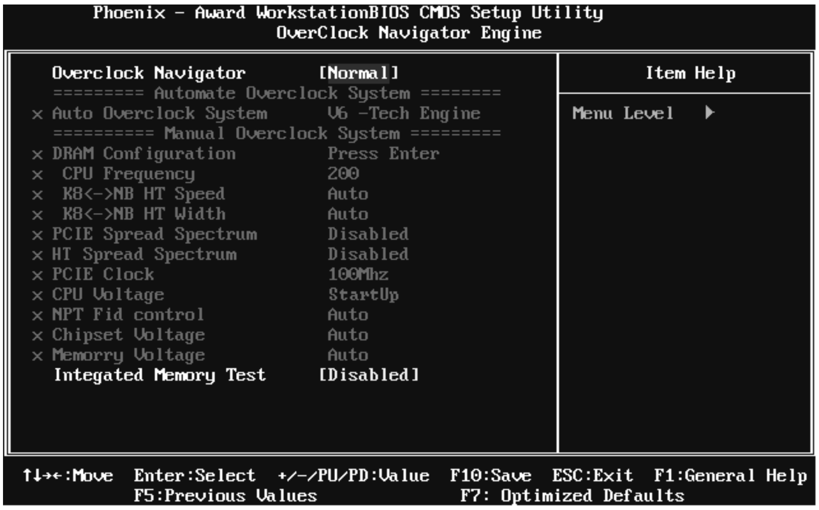
CPU FAN Speed

This field displays the current speed of CPU fan.

SYS FAN1/FAN2 Speed

This field displays the current speed of SYSTEM fan.

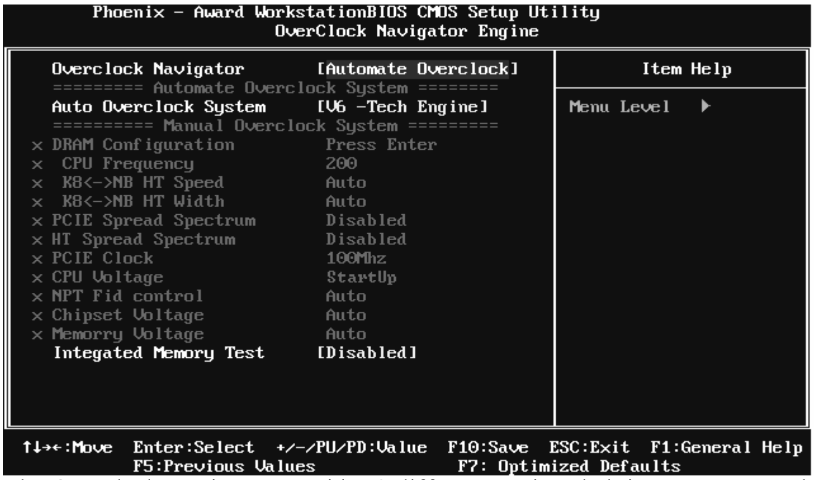
9 Over Clock Navigator



OverClock Navigator

OverClock .Navigator is designed for beginners in overclock field.
Based on many test and experiments from Biostar Engineer Team, OverClock Navigator provides 3 default overclock configurations that are able to raise the system performance
The Choices: Normal (default), Automate Overclock, Manual Overclock

Auto OverClock System



The Overclock Navigator provides 3 different engines helping you to overclock your system. These engines will boost your system performance to different level.

The Choices:

V6 Tech Engine

This setting will raise about 5%~10% of whole system performance.

V8 Tech Engine

This setting will raise about 15%~25% of whole system performance.

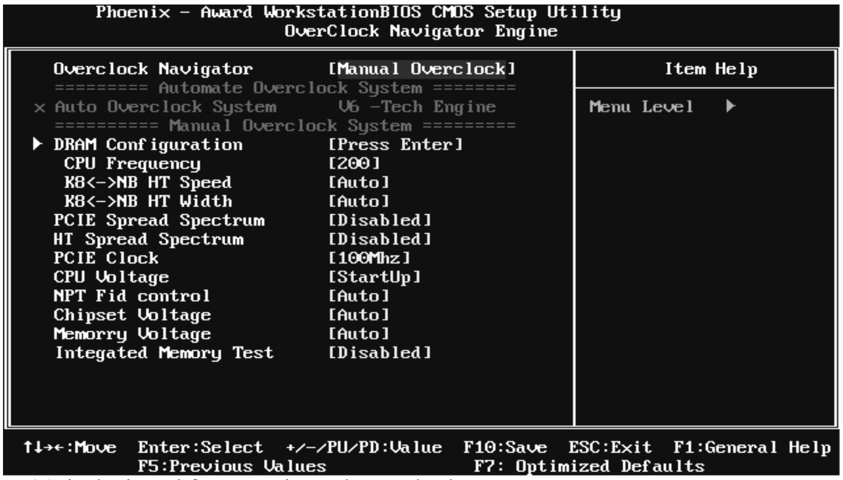
V12 Tech Engine

This setting will raise about 25%~30% of whole system performance.

Cautions:

1. Not every AMD CPU performs the above overclock setting ideally; the difference may vary with the installed CPU model.
2. From BET experiment, the Atholon64 FX CPU is not suitable for this A.O.S. feature.

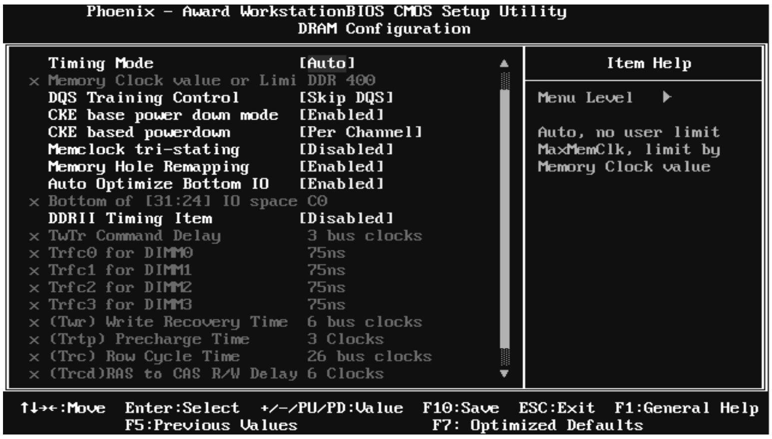
Manual Overclock System (M.O.S.)



MOS is designed for experienced overclock users.
It allows users to customize personal overclock setting.

> ***Note:***
> Based on our test results; the overclock function achieved the best performance on AMD 3000+ CPU

DRAM Configuration



Timing Mode

This item allows you to choose to manually or automatically regulate the DDR Timing.

The Choices: Auto (default), MaxMemClk.

Memory Clock Value OR Limi

The Choices: DDR 400 (default), DDR 533, DDR 667, DDR 800.

DQS Training Control

The Choices: Perform DQS, **Skip DQS** (default).

CKE base power down mode

The Choices: Disabled (default), Enabled.

CKE based power down

The Choices: Per Channel (default), Per CS.

Memclock tri-stating

The Choices: Disabled (default), Enabled.

Memory Hole Remapping

The Choices: Enabled (default), Disabled.

Auto Optimize Bottom IO

The Choices: Enabled (default), Disabled.

Bottom of [31:24] IO space

The Choices: C0 (default); Min=0000, Max=00FF, key in a HEX number.

DDRII Timing Item

The Choices: Disabled (default), Enabled.

TwTr Command Delay

The Choices: 3 bus clocks (default), 1 bus clocks, 2 bus clocks.

Trfc0 for DIMM0

The Choices: 75ns (default), 105ns, 127.5ns, 195ns, 327.5ns.

Trfc1 for DIMM1

The Choices: 75ns (default) , 105ns, 127.5ns, 195ns, 327.5ns.

Trfc2 for DIMM2

The Choices: 75ns (default) , 105ns, 127.5ns, 195ns, 327.5ns.

Trfc3 for DIMM3

The Choices: 75ns (default) , 105ns, 127.5ns, 195ns, 327.5ns.

<Twr> Write Recovery Time

The Choices: 6 bus clocks (default), 3 bus clocks, 4 bus clocks, 5 bus clocks.

<Trtp> Precharge Time

The Choices: 3 clocks (default), 2 clocks.

<Trc> Row Cycle Time

The Choices: 26 bus clocks (default), 11-25 bus clocks.

<Trcd> RAS to CAS R/W Delay

The Choices: 6 clocks (default), 3 clocks, 4 clocks, 5 clocks.

<Trrd> RAS to RAS Delay

The Choices: 5 clocks (default), 2 clocks, 3 clocks, 4 clocks.

<Trp> Row Precharge Time

The Choices: 6 clocks (default), 3 clocks, 4 clocks, 5 clocks.

<Tras> Minimum RAS Active T

The Choices: 18 bus clocks (default), 5-17 bus clocks.

CPU Frequency

This item allows you to select the CPU Frequency.

The Choices: 200 (default), 200~450.

K8<->NB HT Speed

The Choices: AUTO (default), 1x, 2x, 3x, 4x, 5x.

K8<->NB HT Width

The Choices: AUTO (default), ↓8↑8, ↓16↑16.

PCIE Spread Spectrum

This item allows you to select the PCIE Spread Spectrum function.
The Choices: Disabled (default), Enabled.

HT Spread Spectrum

This item allows you to select HT Spread Spectrum function.
The Choices: Disabled (default), Center, Down.

PCIE Clock

This item allows you to select the PCIE clock.
The Choices: 100Mhz (default), 101Mhz~150Mhz.

CPU Voltage

This item allows you to select CPU Voltage Control.
The Choices: StartUp (default), +0.012V ~ +0.787V

NPT Fid control

This function allows you to adjust the frequency ratio of CPU.
The Choices: Auto (default), x4: 800Mhz ~ x25: 5000Mhz
(differs from CPU)

Chipset Voltage

This function allows you to adjust the chipset voltage.

The Choices: AUTO (default), 1.250V, 1.275V, 1.300V, 1.325V

Memory Voltage

This function allows you to adjust the DDR voltage.

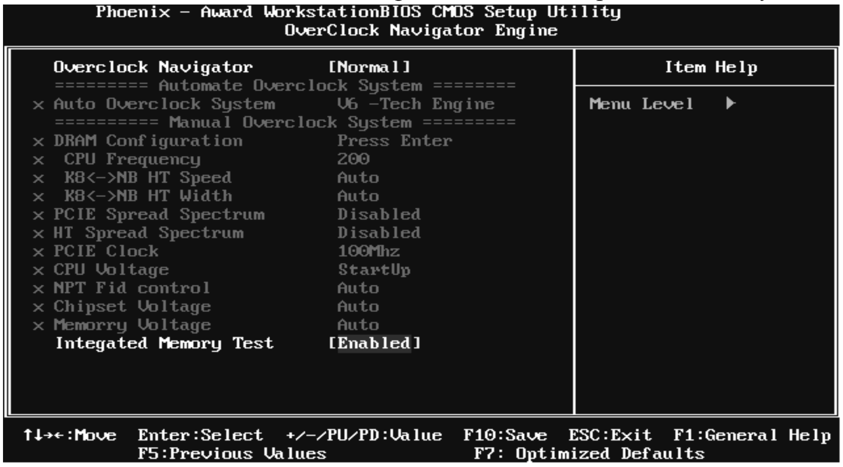
The Choices: AUTO (default), 1.95V, 2.05V, 2.15V, 2.20V, 2.25V, 2.30V, 2.40V, 2.50V.

Integrated Memory Test

Integrated Memory Test allows users to test memory module compatibilities without additional device or software.

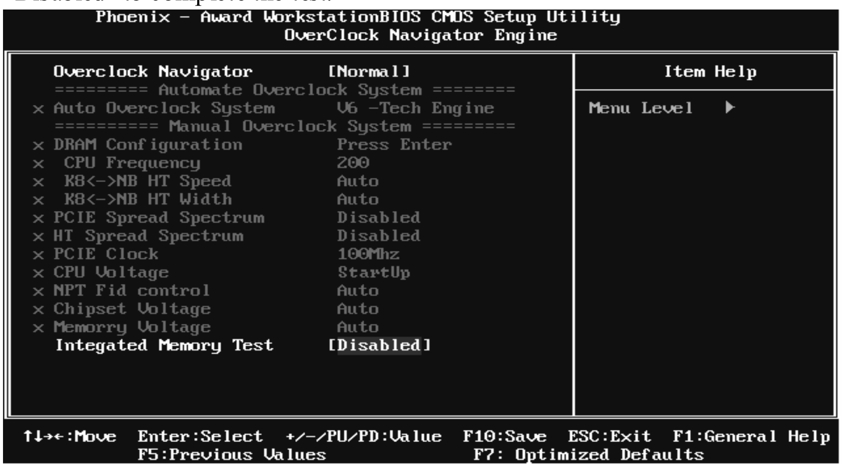
Step 1*:*

This item is disabled on default; change it to "Enable" to precede memory test.



Step 2*:*

When the process is done, change the setting back from "Enabled" to "Disabled" to complete the test.



10 CMOS Reload Program (C.R.P.)

The CMOS Reload Program (CRP) allows you to save different CMOS settings into BIOS-ROM. You may reload any saved CMOS setting to change system configurations. Moreover, you may save your ideal overclock setting for easier overclocking. There are 50 sets record addresses in total, and you may name the saved CMOS data individually.

